INDIAN MAPS

from earliest times to the advent of European surveys

SUSAN GOLE

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پرگرس

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INDIAN MAPS AND PLANS

By the same author

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Gentil lived for twenty-five years in India, spending eleven of them at the court of Shuja-ud-daula. His interests were wide, and he took back to France collections of Indian paintings, manuscripts, arms and coins, and an atlas containing twenty-one maps of the Mughal subas that he had drawn according to the *A'in-i Akbari*. He employed three Indian artists who embellished the maps with Indian miniature paintings.

The maps are reproduced here in full colour, with details from a contemporary French map which Gentil used for the outline, and lists of all the sarkars and parganas noted on the maps.

INDIAN MAPS AND PLANS

From earliest times to the advent of European surveys

SUSAN GOLE

MANOHAR

To Jayashri and Andrew

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PREFACE

When I began studying early maps of India more than a decade ago, I queried the commonly held view that there were no indigenous maps made in India except the cosmographies. These thoughts were put aside, however, while I worked on the European maps. The shape of India that developed on these maps and the location of places mentioned by travellers were supplied by European cartographers, most of whom had never been outside Europe. The history of cartography in India seemed to be dependent on foreigners, and survey maps began with engineers of the British and French armies. Yet stray references to Indian mapping turned up occasionally, and it was obvious that more geographical information was available to the early visitors than they could observe for themselves.

Then the *History of Cartography* project was mooted, and Professor J. E. Schwartzberg began looking in earnest for indigenous mapping in India and South-East Asia. His enthusiasm was infectious, and soon I was aiding him in discovering more and more evidence of early maps made in India which followed no style imported from the west. Over the next four years I actively looked for examples in libraries and museums both in India and in Europe. The result of that search is presented in this book, where over two hundred maps and plans have been reproduced.

The debt I owe to Joe Schwartzberg is large. He not only started me on the search, and shared with me all the discoveries he made, but encouraged me also to write my own book about them. To a certain extent the information provided here may overlap the South-Asian section in the second volume of the *History of Cartography* to be published by University of Chicago Press and edited by Brian Harley and David Woodward. It will also complement it, however, since the development of cartography that will be demonstrated there is fully illustrated here. Further, though we have exchanged information, Joe and I have worked entirely independently in the preparation of our books, so there is likely to be little conformity in the way we have handled the shared knowledge. This should lead to a wider discussion and addition to the total output of knowledge in the subject. The generosity he has shown towards me is, I think, rare in academic circles, and I take this opportunity to express my gratitude to him.

When I decided that I must put a limit to my search, and consolidate the vast amount of material that had been unearthed in order to present it to the public — and I thank Dr B. N. Thirunaranan of Madras for urging me not to remain a 'seeker' for too long — the problem of writing around the pictures appeared daunting if the pictures were not already prepared in the way they were to be placed in the book. With the full backing of an adventurous publisher, Ramesh Jain of Manohar Books, I began to write the book page by page, typesetting as I went along, and fitting text and pictures into the space allotted to each map according to the basic design of the book. I thank my son Vivek for the time he spent patiently instructing a parent in the modern methods of writing direct on a screen, and for undertaking the finer requirements of desktop publishing that were beyond my capability. I am also grateful to Keith Attenborough for advice in preparing the illustrations, and the high quality he achieved, often with poor material to start from. Stuart Jackson read the pages as they were made, not once but twice, and I am grateful for the many helpful suggestions he gave, and corrections to my typing. His advice was especially valuable since it came from an 'outsider' both to modern India and to Indian maps, though one with affectionate memories of previous acquaintance.

At an early stage in the preparation of the book, it was necessary to decide what should be included under the title of 'maps and plans'. There is no limiting definition of a map; monographs have been written on the subject. I therefore decided to include only maps of places that could be reached by a travellor, and returned from,using this phrase as a very rough guide in my mind while selecting the photographs. This ruled out the cosmographies, and explains why they have been only briefly included in the Introduction, with one example to illustrate the type. Though they are specifically 'Indian', they are not the only cartographic artefacts to come from India, and have perhaps been given undue importance in earlier publications. Now that so much material of a more earthly nature has come to light, the balance may be redressed.

Some of the photographs that are reproduced here are of excellent quality; others are so poor that they should, perhaps, have been omitted. However, the difficulty with which they were obtained, and the fact that as far as I am aware the maps they depict

have never previously been published, persuaded me to include them.

Locating the originals was a lengthy task. Early maps are usually ignored, by historians who tend not to think cartographically, and by geographers who rarely look backward. So book after book that might have benefited from study of contemporary maps included no mention of them. Even books dealing with, for example, trade routes of Mughal India or the development of Shahjahanabad contained no early maps, since the authors were unaware of their existence.

Letters written to museums often remained unanswered, or brought denials of any knowledge of an Indian style of mapping. Yet when examples were produced, and the object of the search was explained, it was exciting to find my enthusiasm shared, and new material brought out from cupboards and basements. I wish to thank all the curators, librarians, their assistants and research workers who helped me in my task. I particularly thank Dr A. K. Das and his staff at the City Palace Museum, Jaipur. The large collection of maps that has been preserved there required four visits to study, photograph and translate, and each time I went I was received graciously and given full assistance.

In the Acknowledgements I have endeavoured to list all the people and institutions who supplied photographs or permitted me to take my own, and all those who helped me with translating and understanding the maps. I am aware of some omissions, particularly during the early period of my research before I had decided on the exact format of the book, and request such people to accept this general expression of gratitude.

To return to the quality of the photographs and the way in which they have been reproduced here. The large number of institutions involved and their distant location meant that a second visit was often not possible. Sometimes the only photographs available were supplied by those institutions, and nothing better was obtainable, even if no expense were spared in repeated visits, correspondence and photographers' fees. Sometimes the material itself was so fragile or so poorly preserved that it was not possible to lay it flat for photography. One map was behind glass in a narrow corridor, another too large to be fully spread, a third seen briefly on an earlier visit, but not open to view at a later date. The reasons are endless. Anyone who has been engaged in as wide a search in similar circumstances will understand the problems.

One alternative might have been to limit the content of the book to a few maps which I could study in detail, have fully translated, and compare with modern surveys to ascertain their accuracy. Indeed, some holders of the material were indignant that their prized object was to be treated in so cursory a fashion, only one page for such a fine example! Many of the maps illustrated here are worthy of individual treatment in a monograph, if not a book devoted to a single map or class of maps. If their introduction to the public in the brief way that has been undertaken here leads to such a study, I will feel well rewarded.

Now that so many Indian maps have been brought to light many more may come tumbling out of the cupboards. It has often been chance that preserved those that are illustrated here, and so many have been lost when their value was not recognised. Most of those that are on display in museums are likely to stay in good condition. Their style and content, however, has not led them to be prized in the way that Indian miniature paintings and sculpture have captured the regard of the west. As art forms they are not universally admired, and as geographical artifacts they soon gave way to modern surveys. Yet they provide a glimpse of the way in which people of the time viewed their country, their village or town, the route from one place to another, the proximity or distance of well-known pilgrimage sites, and what travellers thought was important enough to be recorded along the way. None of them were printed, so each is a unique piece; even the few that were made as copies show some new feature.

No contemporary account by a resident or a visitor can provide this irrevocable view of his surroundings that shines out from these maps. Words can have different meanings to readers of varying backgrounds and experiences, but maps, provided their symbols are recognised, permit no ambiguity in the information they display. That they are not accurate does not reduce their value as revelations of contemporary thought. Early Indian maps deserve discovery of their hiding places, more study to date them, and better preservation.

I. INTRODUCTION

Most early societies have made maps of one form or another, and used them either to record places that have been visited, as a guide to reaching them again, or to illustrate imaginary places, usually of a religious nature. Modern cartography, more or less uniform in style throughout the world in the twentieth century, has developed from the methods used in Europe since the beginnings of civilisation there. These methods were based first on the locations reported by travellers and sailors, which were gradually fitted into coordinates of latitude and longitude, and later by measured survey. The problems faced when the curved shape of the earth was to be drawn on a flat surface were solved in various ways, and new attempts to answer this question continue to be made. With this strong line of steady development, and its presently accepted modes, any styles of map-making which did not conform to recognised patterns were usually dismissed as being of no value, or stored in libraries and museums as quaint curiosities.

This is what happened to Indian map-making once the country was fairly well known to Europeans, and it was being measured by the British-founded Survey of India. At the end of the 18th century Francis Wilford[1] had made efforts to locate and understand Indian examples of maps, and though his words on the subject are the most frequently quoted, the maps he discovered are now unavailable for study and their whereabouts is unknown.

That there were maps is gradually becoming obvious, though it is debatable whether there were any that might truly be called geographical maps before the arrival of European influence. It will be necessary for more examples to be found, their dates to be established, and perhaps the discovery of a continuous development in cartography, or a development spread over the diverse parts of the sub-continent, before a clear picture can be seen. In the meantime whatever has been located during the last five years has been gathered together here into one volume, in the hope that it will stimulate further searches, and study by people who know their own area, and are thus in a position to suggest dates and influences in the maps that are illustrated here.

Wilford had also written about the Hindu maps of the world, drawn 'both according to the system of the *Puranics*, and of the astronomers', which he said were very common.[2] These cosmographies have not been included here, except to illustrate the type [4].[3] They have been reproduced in many books, including those on Indian art, or Tantra, or religious and geographical theories. They usually show Mount Meru at the centre, with four rivers running from it, two being the Indus and the Ganges which flow to the sea on either side of the Indian peninsula. Such maps were made by Hindus, Buddhists and Jains, with some variations, but essentially all of the same type. Since so few other maps made in an Indian style were known, these cosmographies have been taken as the major cartographic output from the country, with an assumption, sometimes explicitly stated, that the Indians were too involved with matters of the spirit to be concerned with such earthly pursuits as making maps of the inhabited globe. While it is true that so far no continuous line of development in the depiction of the earth, or of their own country, has been found in India, there are yet several distinct types of maps, using the term in the European meaning, that were in use, either before the coming of the foreigners from overseas, or at the time that the Europeans were attempting to set down the correct positions of the various towns, roads, rivers and mountains on maps made according to travellers tales, or later from survey.

It has been necessary in this search for early maps and plans of India to avoid any precise definitions of what constitutes a map, and in most cases to make no attempt at dating the find. There are very few

1. Francis Wilford, 'An Essay on the Sacred Isles in the West', *Asiatick Researches*, 1805, Vol. VIII, pp. 245–367. Wilford (1750–1822), of the Bengal Engineers, was employed in the Surveyor General's Office at Calcutta from about 1780, and then at Benares until its closure in 1794. He then became Secretary to the Committee of the Sanscrit College at Benares, and virtually its director. In this long article, Wilford recorded all that was then known about the geographical theories of ancient India, and translated extracts from the *Puranas*. He concentrated on the Hindu texts, and in a later article, Vol. IX, pp. 320–321, Colin Mackenzie (1753–1821), wrote of the Jain beliefs. Mackenzie was from the Madras Engineers and became Surveyor General of Madras Presidency, and later of India. The *Puranas* comprise eighteen books of ancient history and tradition, the earliest dating from the 4th century B.C.

2. Wilford, op.cit. p. 270.

3. Numbers in square brackets in the text, or without brackets in the centre margin, refer to illustrations. The first seven are in the first section of the Introduction, the remainder follow after page 48.

maps which have received detailed study, enabling a firm date to be given to their completion. Another problem is the number of languages which were used, and the local dialects and nomenclature.

The maps under consideration have been grouped roughly into eight categories. There is a lot of overlapping between the categories, and they could have been divided equally well in several different ways. One way might have been according to the region of India where they were made, regardless of function or intent, since there is so much difference between the maps of, say, the Marathas and the half dozen of Kashmir. But throughout history there has always been free and frequent movement within the peninsula, and identity of cultural habits and religious beliefs, so that it is unlikely that the products of one region were unknown in others, even if they were not followed or copied. Some maps are also not easy to place, and might have been made anywhere in a wide area. Within each category the maps are illustrated in a very rough chronological order, but this may be incorrect by as much as a century or two, since so few of them have been dated or examined closely. Further, some maps are known only from late manuscripts, and it has been assumed that they were copied from the original manuscripts which are no longer extant.

This very rough grouping of the maps falls into the following categories:

I. In this Introduction are shown the few surviving examples from an early period, and some later designs, which may not even be classified as maps or plans under a strict definition.

II. The second category includes maps which seem to have been made for a purely religious purpose, although there are some religious maps in the topographical section also.

III. The few early globes follow, since much of the areas they depict are cosmological rather than geographical. Included with them are world maps.

IV. In the topographical category is a wide range, from a world atlas, through strip maps of routes or canals, the large number of maps of Kashmir, and others which possibly owe their conception to foreigners, though this is not proved.

V. Any maps that show battlefields or fortified places are grouped together as military maps.

VI. They are followed by navigation charts, of which only two examples are known.

VII. Next come the plans of towns, which are as varied in style as the large group of topographical maps.

VIII. Finally the maps made in Jaipur for the purposes of construction or renovation have been placed in a separate category, as they were made over a fairly short period, and presumably by a single body of people, though from their content they might have fitted into several other categories.

None of the maps carry a scale. To those used to maps developed in the West, this may seem to preclude their usefulness for the geographer or traveller. But those who made them seem to have had their own idea of scale, based not on distance but on importance. On the map of Gujarat in the Baroda Mu-
48 seum, the town of Ahmedabad covers a vast area, if the map were drawn on a European idea of scale. Some of the villages too, especially those noted for something special, perhaps the strain of bulls bred there, are drawn larger than one might expect. This reflects a scale of importance rather than measurement, where it is necessary to know the intent of the map-maker, and not treat the map as an objective item that can have only one interpretation.

This characteristic is not really surprising when it is realised that even the basic units of measurement varied. The different lengths of the common unit, the *cos*, were recognised by European cartographers from an early date, and many of them showed scales for the different types of cos, just as they gave different scales for the German mile, the French league and other units of measurement. But they do not seem to have realised that in India measurements were even more varied.

In a recent study André Wink defines a *bigha* as 'a measure of surface or capacity'. Though less than an acre, the bigha was the equivalent standard measurement throughout India; no one, however, would define an acre as a measure of capacity; it always remains the same size regardless of where the measurement has been made. Etymologically one might speculate on the origins of the bigha and the Latin *virga*, a linear measure.

With reference to Maharashtra (Western India), Wink quotes from early records[4]: 'Plots of ground measured in bighas were almost everywhere entered on a nominal standard of productiveness, varying in the different parganas, with the bigha of good land or garden land being smaller than the bigha of bad land, or, again, the bigha varying with the nature of the soil might be representing a "share" of a large unmeasured estate or of units assessed by the plough. Only in a few places the assessment was fixed upon

4. Quoted from *Selections of Papers from the records at the East-India House Relating to the Revenue, Police, and Civil and Criminal Justice under the Company's Government in India*, (London, 1820–26, Vol. IV, pp. 320, 343, 389, 405) in André Wink, *Land and Sovereignty in India; Agrarian Society and Polity under the 18th century Maratha Svarajya*, 1986, Cambridge University Press, p. 290.

bighas of a uniform measure . . . Next to the bigha a large number of other measures was in use, differing in every district and often in every village, none of them having reference to any fixed length.' Land measurements were made to determine the tax or the revenue from a particular parcel of land, or village, or group of villages, and obviously irrigated land was more valuable than unirrigated land. A cartographer attempting to depict a large area on a topographical map would therefore need to know more of the land than just its size.

In Jaipur another foreigner was perplexed by this sliding scale of measurements, which were fully understood by those who used them, but incomprehensible to people accustomed to the 'black-or-white' accuracy of the West. E. R. K. Blenkinsop, Settlement Commissioner in Jaipur State in 1924, wrote: 'I can offer no revenue statistics of any value. There are some 40 different bighas in use in different parts of the State, based on chains or rather ropes varying from 100 feet to 185 feet. The cultivator claimed that the cash rents were not liable to enhancement, and so instead of raising the rate per bigha, the size of the bigha was reduced by taking 17 gathas to the chain in place of 20 and of course, when the sanctity of the chain is tampered with, any result may be arrived at.'[5] One can imagine the frustration of this civil servant as he wrote these words.

For a long time indigenous maps in India have been discounted since they do not follow the western style of mapping. In his translation of Kalhana's *Rajatarangini* Aurel Stein wrote of the 'quaint illustrations and maps' that accompany the text of the 'Kasmiratirthasamgraha', and found no use for them in his geographical treatise on the early geography of Kashmir.[6] Yet surely a close study of them would 58
reveal much information about the places they depict which is not otherwise available. This is presuming that they were drawn on the spot from first-hand observation, and there is no proof that they were not.

We are perhaps in a better position to appreciate the maps and plans drawn according to an Indian style now than when Francis Wilford wrote in 1805, 'They have also maps of India, and of particular districts, in which latitudes and longitudes are entirely out of question, and they never make use of a scale of equal parts. The sea- shores, rivers and ranges of mountains, are represented in general by strait lines.'[7] This last observation seems to indicate that Wilford was referring to maps of the type drawn by Idrisi and other Arab geographers, not those described here.

How far the maps in this book were following an indigenous pattern is also impossible to state with the existing knowledge available. As will be seen, most of the maps that have been traced so far were certainly drawn after the arrival of a large number of foreigners from Europe. A few earlier ones date from the period of the Mughals, also foreigners from beyond India's borders of the time. It was during the height of the Mughal rule that Europeans began to come to India, to bring their religion, to make their fortune, or merely out of curiosity, and some took employment in the royal court or army. The names of many of these mercenaries, and even of private craftsmen, traders, and workmen, have not been remembered because they left no written record of their stay in India, and were not mentioned in the journals of others. A brief study of Manucci's *Storia da Mogor* makes this plain.[8] Yet it must also be remembered that maps were never cheap articles, and in the days when there were travellers who had no knowledge of reading and writing, many of them might never have seen a detailed map, and certainly would not know how to make one.

To be sure that the content of a map has been fully understood it is necessary to know the intent of the cartographer, when he was planning the map and deciding what symbols to use and how to depict his subject. Since no list of symbols was given in these maps of India, it is possible that they contain information that has not been so far understood, or realised. On the other hand, it may be true that Indians did not require maps since they had good memories, and preferred to keep such things secret.[9]

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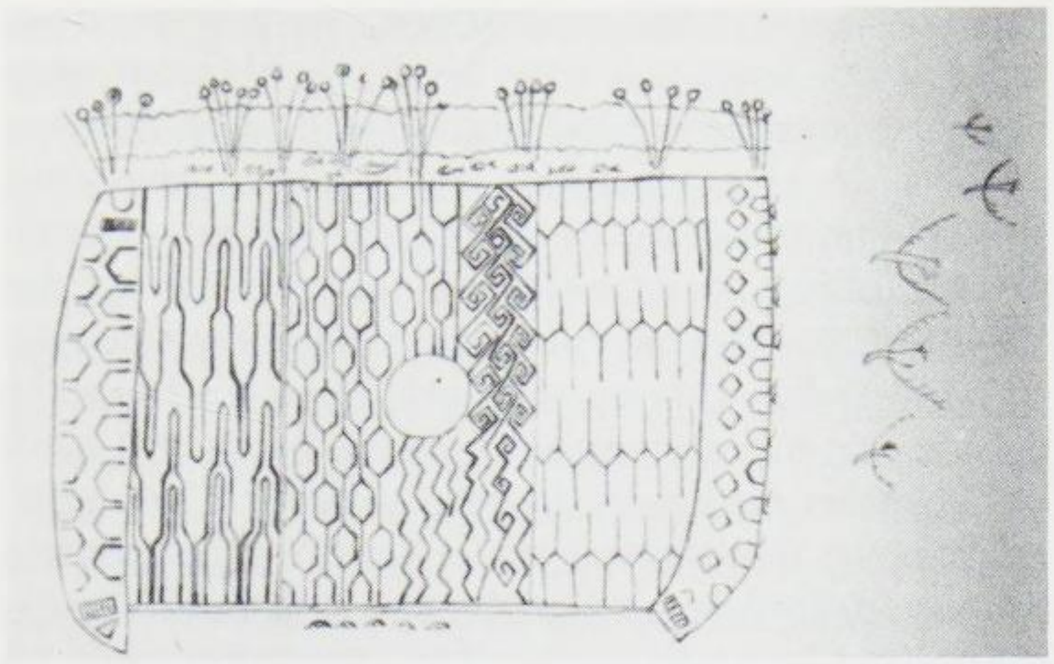
5. Quoted in Ashim Kumar Roy, *History of the Jaipur City*, 1978, New Delhi: Manohar, p. 207.

6. *Kalhana's Rajatarangini, A Chronicle of the Kings of Kashmir*, tr. with an introduction, commentary and appendices by Aurel Stein, 1900, repr. 1977, Delhi: Motilal Banarsidass, Vol. II, Bk. VIII, p. 384.

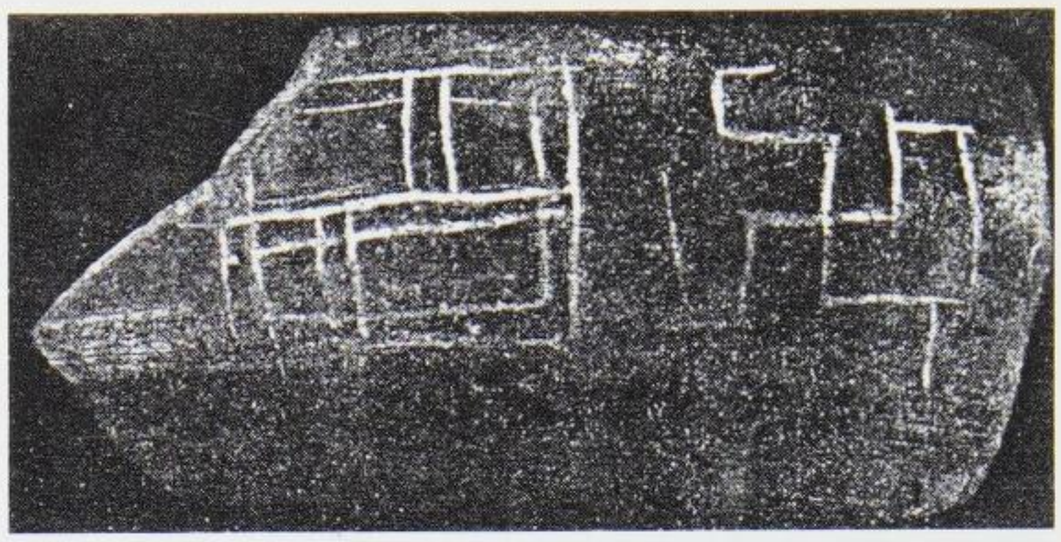
7. Wilford, op. cit. These are the famous words of Wilford, quoted so frequently, e.g. in P. D. A. Harvey, *The History of Topographical Maps; Symbols, Pictures and Surveys*, 1980, London, Thames and Hudson, p. 119. Wilford went on to describe a map of Nepal given to Warren Hastings, which appears to have been three-dimensional. It is not now known to exist.

8. Nicolai Manucci, *Storia do Mogor*, tr. William Irvine, 1907, London: John Murray, *passim*. Manucci was in India as a private traveller during the 17th century, during most of Aurengzeb's reign (1658–1707).

9. A sentence in *Suryasiddhanta* (an astronomical text begun about 400 A.D., with additions up to 1100 A.D.), VI.24, is sometimes quoted to show this love of secrecy and retention of learning among a select few: 'The art of cartography is a secret of the Gods. This knowledge cannot be imparted to every individual. It should only be given to a tested pupil who has spent a year or two learning astronomy. This is why I am not making knowledge of cartography public to readers.' This is the translation in M. P Tripathi, 'Survey and Cartography in Ancient India', in *Journal of the Oriental Institute*, M. S. University of Baroda, 1963–64, p. 168. An earlier translation, however, by Ebenezer Burgess, in *Journal of the American Oriental Society*, 1860, Vol. 6, p. 306,



1. Cave painting from Jaora in Madhya Pradesh (Mesolithic period), which might represent the cosmos. (Reproduced from Erwin Neumayer, *Prehistoric Indian Rock Paintings*)



2. Inscribed potsherd from Salihundan, Andhra Pradesh, with marks which might denote a plan for a Buddhist monastery. (Reproduced from R. Subrahmanyam, *Salihundan)*)

Early examples

Among the numerous cave paintings in Central India only one has so far been noted which can be interpreted as having map-like qualities. More and more paintings continue to be found, and no one so far has specifically looked for maps. However, in a cave at Jaora in Madhya Pradesh there is a painting 50 cm wide which Erwin Neumayer describes as a typical Mesolithic design with its intricate patterns.[10] 'To the top, water is indicated by wavy lines, water plants and fish. On the right and lower borders, stylised water birds can be seen. To the right, five flying birds indicate the air. This painting can be understood as a symbolic depiction of the Mesolithic cosmos. The design could denote the earth.' This is a more realistic attempt to depict the earth than some of the later religious designs of the cosmos.

In the Indus Valley culture with its widespread similarity of style and town-layout it might be supposed that there was some use of plans, if not actual maps. None have been found so far. S. R. Rao has described instruments he found at Lothal in Western India that might have been used for survey: 'Town-planning presupposes a careful survey of the land and measuring of angles for determining the alignments of streets, drains and houses. For this purpose an instrument made of shell was used at Lothal. It is a hollow cylinder with four slits on each of the two edges. When placed on a horizontal board it can be used almost as a compass in plane table survey for fixing the position of a distant object by viewing it through the slits in the margins. The lines so produced pass through the central point. If the opposite slits on one side are joined by cords they cut at right angles, and if all the cords passing through the slits on both the margins are drawn on the same plane as shown in Pl.XXXIIB they intersect one another at the centre and the angles so formed by the eight lines measure exactly 45° each. Obviously this instrument must have been used in land-survey and for fixing alignments of streets and houses. Marshall considered similar objects found at Mohenjo-daro as personal ornaments, but they are too thick to serve as finger-rings and have too many slits to serve as pendants.'[11]

Scales have been found at several sites. One of shell at Mohenjo-daro, now only six and a half inches long, was marked on one side with units of 0.264 inches. According to Mackay it was 'beautifully made and finished, and its accuracy is remarkable; the division lines were very carefully cut with a thin saw'. Another, at Lothal, was made of shell, and 128 mm remain, with twenty-seven lines marked. The sixth and the twenty-first lines were longer, implying a decimal scale. Another graduated scale was reported from Kalibangan.[12]

A few fragments of pottery show markings which may be taken to depict plans of buildings. Kasrawad in former Holkar State was occupied for one period only, in the 2nd century B.C., and then abandoned. 'Some geometrical designs which look like rough plans of houses and the compartments in them are

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reads, 'This mystery of the gods is not to be imparted indiscriminately: it is to be made known to the well-tried pupil, who remains a year under instruction.' The 'mystery' which the later translator reads as 'art of cartography' is in fact a knowledge of eclipses, and has nothing to do with cartography. It can thus be seen how easily misunderstandings can occur when more is read into a text than is warranted, in a desire to find evidence for a theory.

10. Erwin Neumayer, *Prehistoric Indian Rock Paintings*, 1983, Delhi: Oxford University Press, Fig. 26e.

11. S. R. Rao, *Lothal and the Indus Civilization*, 1973, Bombay: Asia Publishing House, p. 107. I am grateful to Dr Himanshu Ray for drawing my attention to archaeological reports quoted here.

12. The scales from Lothal and Kalibangan are reported in Rao, op. cit. , p. 105, and that from Mohenjo-daro in E. J. H. Mackay, *Further Excavations at Mohenjodaro*, 1938, Delhi, Vol. I, p. 142.

incised on the pots', wrote D. B. Diskalkar. At Salihundan, a Buddhist site in Andhra Pradesh, a fragment of pottery was found with what is assumed to be a plan of a monastery, and a swastika mark. The swastika was one of the ground plans for buildings in Lanka mentioned in the *Ramayana*, and is a very ancient design, being found even at Mohenjo-daro.[13] This sherd was dated to the Middle Phase at Salihundan, between the 1st and 4th centuries A.D. It is possible that such marks were added as symbols of identification, not so much for the pots themselves, but for their contents, whatever they were. Similar designs were found at Nasik from the later phase of the Early Historic period. An engraved stone slab from a neolithic site at Burzahom, Jammu and Kashmir, has been described as a tectiform, though at first glance it might appear to be a plan.[14]

Literary references to early maps

There are several references in Sanskrit literature which either mention maps, or imply that they were in use. According to D. C. Sircar there is no special word in Sanskrit for a map. 'The word *naksha* (from Arabic *naqshah*) has been adopted in most modern Indian languages in this sense, although it also signifies "a picture, a plan, a general description, an official report." In Eastern India, the word *mana-chitra* has been coined to indicate the English word "map". The absence of any special Sanskrit word raises the question whether map drawing was at all known to the Indians of old. There is, however, reason to believe that in ancient India a map or chart was regarded as a *chitra* or *alekhya*, i.e. "a painting, a picture, a delineation".' It will be seen that the Sanskrit word *chitra* and its synonyms have practically the same meaning as the Arabic word *naqshah*.'[15] Other writers have found evidence that maps were in use at the time of the great epics, and the later religious and secular chronicles. B. N. Thirunaranan pointed out that in the *Ramayana* the original words used to describe the scene where monkeys were being sent in all directions can only refer to the use of a plan while their orders were being given.[16] In another passage describing the building of a bridge over the Ocean there is a reference to a bridge being made first of grass and wood, and then the huge genuine one being constructed. Possibly this indicates that a model was made, rather than a plan.[17]

In the 5th century manuscript *Brihatkathaslokasamgraha* by Budhaswami there is a more precise reference to a navigation chart. V. S. Agrawala has paraphrased it: A ship was carried astray by the wind and reached a mountain called Srikunja, as the merchant on board learnt from the ship's captain. 'Hearing the account of the Srikunja mountain as related by the Niryamaka [ship's captain] to the sea-merchant, the prince Manohara noted down on a wooden board, having a cover on it (*samputaka*), the details about the particular sea, direction and place (*saha-sagara-digdesam*). With this information the prince ordered a boat manned by an experienced Niryamaka-sailor and went out in the sea in search of that spot. Impelled by favourable wind he reached his desired destination. In accordance with the marks and signs as noted down on the board the prince identified the Srikunja mountain and reached there.'[18] No such charts have been discovered from that time, though they are presumed to have existed from the length of the voyages undertaken, and the large numbers of such voyages. A series of charts from Kutch and the Chinese charts of the Indian coasts will be described later.

K. V. Ramesh has reported an inscription from the end of the 8th century which shows use of a plan prepared for the construction of a temple: 'Towards the end, the inscription records the construction of a temple for the goddess Chandika, for which, on the tenth day of the bright half of the last month of the Vasantaritu, i.e. Vaisakha in the saka year 717 (= 795 A.D.), the architects, appointed for that purpose, duly completed the preparation of the plan or blueprint [*mulapada*], complete with such environmental accessories as a grove of different varieties of fruit-bearing trees, a well and a garden.'[19] The very large number of copper-plates that record the grant

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13. The *Shilpasastra*, a type of literature dealing with iconography, architecture and town-planning, gave detailed descriptions of how various buildings should be built, and described ground plans, but no early illustrated example is known, and it is possible that there were no illustrated texts.

14. The potsherd from Kasrawad is illustrated as Photo 5. 1 in D. B. Diskalkar, 'Excavations at Kasrawad', *Indian Historical Quarterly*, March 1949, Vol. XXV, No. 1, pp. 1–18. For the Salihundan example, see R. Subrahmanyam, *Salihundan, a Buddhist site in Andhra Pradesh*, 1964, Hyderabad. Fragments from Nasik are illustrated in H. D. Sankalia and S. B. Deo, *Report on the Excavations at Nasik and Jorwe 1950–51*, 1955, Poona, Plate XVIII. The tectiform (roofed building) is illustrated in a Brief Communication by B. M. Pande in *J. Indian Anthropological Society*, 1972, Vol. 7, pp. 175–77.

15. D. C. Sircar, 'Ancient Indian Cartography' in *The Indian Archives*, 1951, New Delhi, Vol. V, p. 60.

16. Personal communication.

17. *The Ramayana*, ed. Manmatha Nath Dutt, 1892, Calcutta, Vol. III, p. 1165, (Section VI 22. 56–60). This epic history was probably completed by the 1st century B.C.

18. V. S. Agrawala, *Brihatkathaslokasamgraha, A Study*, 1974, Varanasi: Prithvi Prakashan, p. 337.

19. K. V. Ramesh, 'Recent Discoveries and Research Methods in the field of South Asian Epigraphy' in *Indus Valley to Mekong Delta, Explorations in Epigraphy*, ed. Noboru Karashima, Madras: New Era. The inscription is to be published in *Epigraphia Indica*, Vol. 41.

3. Plans for the construction of *chiti*, fire altars, from a 17th century manuscript. The colours denote the mantras to be chanted while each brick is laid.

of villages or lands to brahmins and others all seem to have been textual, and not cartographic, though it might be supposed that a simple plan would have been easier than inscribing long details of boundary markers. Such a plan, however, would have been understood by common people, and the literate brahmins preferred to keep knowledge in their own power. Another inscription recorded by K. V. Ramesh (dated Saka 984, 1062 A.D.) describes no fewer than seventy-five such points, in order to provide an exact delineation of the donated land.[20]

A copper-plate found at Monghyr in the l8th century was probably of this type, though the way in which James Rennell mentioned it led several scholars to describe it as a map. He was in fact discussing the way in which Aristagoras in 5th century Greece communicated his ideas, with 'a MAP engraven on a tablet of brass or copper; the first of its kind, we believe, that is mentioned in history: but which practice may nevertheless have been in use, amongst the statesmen, and men of science of those days.' A footnote appended to this sentence reads, 'Many of our readers must have heard of the copper plate, which had a copy of a grant of land engraven on it in *Sanskrit*; and bearing date about the time of the birth of our Saviour; found at Monghir in Bengal, some years ago. It was translated into English by my friend Mr. Wilkins. The plate is now in England.' This sentence has caused much confusion over the years. If the plate could be identified, it would possibly be found that Rennell was comparing the use of *copper* for such records, not the use of a *map*, since no such graven map is now known, nor was it ever published. Santarem, Francesco Pullé and D. C. Sircar have all presumed that Rennell was referring to an actual map.[21]

Plans of a different type have been discovered by H. G. Ranade in a late copy of a manuscript. A commentary on Apasthamba's *Srauta Sutra* contains coloured diagrams of various types of *chiti*, or fire altar.[22] The manuscript, translated from the local

20. Communicated by K. V. Ramesh. The inscription referred to is in 'Ittagi Plates of Kadamba Jayakesi I', to be published in M. S. Nagaraja Rao and K. V. Ramesh, *Copper Plate Inscriptions from Karnataka*, Mysore: Directorate of Archaeology and Museums.

21. James Rennell, *The Geographical System of Herodotus*, 1800, 2nd rev. edn 1830, London, Vol. I, p. 429. Referred to in Le Vicomte de Santarem, *Essai sur l'histoire de la cosmographie et de la cartographie pendant le moyen-âge*, 1849, Paris, Vol. I, p. 363; Francesco L. Pullé, *La cartografia antica dell' India*, Parte I (Studi di Filologia Indo-Iranica, Vol. IV), 1901, Florence, p. 12; D. C. Sircar in *The Indian Archives*, Vol. V, 1951, p. 62.

22. Details of these altars can be found in Frits Staal, *Agni*, 1983, Berkeley: Asian Humanities Press, 2 vols. There is, however, no mention of illustrated texts in his study.

Andvil bhasha of Andhra Pradesh into Sanscrit written in *Granta lipi*, dates from the 17th century, but the tradition is much earlier, and it is possible that earlier manuscripts also contained such diagrams. The text describes in great detail exactly how the *vedi* (sacrificial area) was to be laid out, and how the five layers of the *chiti* were to be built. The first, third and fifth layers were identical, as were the second and fourth in a different pattern. Some bricks, coloured red, were to be placed to the accompaniment of a chanted *mantra* (prayer), while for the yellow ones no such mantra was necessary. The black bricks were to be used as space-fillers, with no special mantra. Three styles of *chiti* were shown, the *shena chiti* in the shape of an eagle, the *chakra chiti*, circular in shape, and the *ubhaya chiti* (literally 'double'), in the form of two triangles. The type of ceremony for which the *vedi* was required determined the shape of the *chiti*. The concept of drawing a plan to illustrate the text, to convey a more precise meaning than that conveyed by words alone, is thus established, though not from an original manuscript of an early date.

More literary references are to be found in Sanskrit dramas. D. C. Sircar has written in the article mentioned earlier, 'Act I of the *Uttararamacharita* by Bhavabhuti, who flourished in the eighth century A.D., is styled "the inspection of the painting". It is said that a painter (*chitrakara*) painted along a walk (*vithika*) the experiences (*charita*) of the Ikshvaku king Rama of Ayodhya in Dandakaranya, Kishkindhya, Lanka and other places, according to the instructions of the king's brother Lakshmana who had accompanied Rama to the forests. These paintings included some which are said to have depicted particular regions and may be regarded as sort of maps. One of the paintings seems to have been conceived as showing the Prasravana hill as "extending to the heart of Janasthana whose darkness is deepened by perpetually pouring clouds and whose caves ring with the flow of the Godavari which is embraced by the forests at the skirts that are of a uniformly mild blue colour because of the dense rows of trees" (ed. S. Ray, Calcutta, 1934, p.106). The reference to forests painted in mild blue colour is interesting. In the same context another painting apparently of a map-like nature is introduced by Lakshmana to Rama and Sita in the following words: "Here is the tract (*bhaga*) of the Dandaka forest known as Chitrakunjavat to the west of Janasthana, haunted by the headless giant Danu; this is the site (*pada*) of the hermitage of Matanga on the Rishyamuka hill; this again is the emaciated Sabara woman named Sramana; this is the celebrated lake called Pampa" (ibid., p.121).'[23] While the scenes described here may possibly have been in the form of a map, it seems more likely that they were views, of the kind still painted today in Jain temples, which will be mentioned later.

Another dramatic map reference, discovered by B. J. Sandesara, is in a Sanskrit play of the 15th century. The *Gangadasapratapavilasa* by Gangadhara is a historical play based on a contemporary event, the conflict between Sultan Muhammad II of Ahmedabad and King Gangadasa of Champaner, a famous hill-fort in Gujarat, which took place in 1449 A.D. According to Sandesara, 'There is a detailed description of the fort of Champaner in this play in Act VII. The Sultan has laid siege on the fort. He wants to know from Virama, one of his Hindu vassals, about important places in the fort. Virama tells the Sultan that he had not seen the fort personally, but his priest once visited it . . . he had asked the priest about the topography of the fort, and had got it painted on a *Pata* or cloth. *Keeping this map in hand Virama describes the fort of Champaner to the Sultan.*'[24] The description is very detailed, and certainly seems to have been made with a map before the speaker. R. N. Mehta (in a personal communication) commented that he had verified the description and found it not only accurate but also helpful in identifying on the ground many monuments and sites noted in the drama.

Claims have been made that there are references to maps in the *Puranas*. The texts, however, are not specific, and it is possible that the will to establish an early development of cartography in India has led to more being read into these texts than actually exists. Singh, Singh and Dube wrote: 'In the *Linga Purana* there is a description of the world map on a square golden plate of one cubit's length.'[25] The word *sudobhana* normally means 'splendid', 'fine', 'resplendent', but is here taken to mean a golden plate, since the size of a cubit (about 18 inches) is mentioned. The 'description of the world map' consists of mention of the seven *dvipas* (continents), the

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23. D. C. Sircar in *The Indian Archives*, 1951, Vol. V, pp. 60–61.

24. B. J. Sandesara, 'Detailed description of the fort of Champaner in the Gangadasapratapavilasa, an unpublished Sanskrit play by Gangadhara', in *J. of the Oriental Institute*, (M. S. Univ. of Baroda), 1968, Vol. XVIII, pp. 45–50. I am grateful to Prof. R. N. Mehta for bringing this article to my notice.

25. R. L. Singh, L. R. Singh and B. Dube, 'The Ancient Indian Contribution to Cartography' in *The National Geographical Journal of India*, 1966, Vol. XII, pp. 24–37. This is a useful article for quotations from Sanskrit literature, and a review of the types of town-plans laid down in the scriptures. The conclusions drawn by the authors are debatable. I am grateful to Michael O'Keefe for assistance with the Sanskrit. A very full bibliography of early literature with any possible bearing on cartography and geography is in M. P Tripathi, 'Survey and Cartography in Ancient India' in *Journal of the Oriental Institute', M. S. University of Baroda, 1963–64, pp. 168ff.*

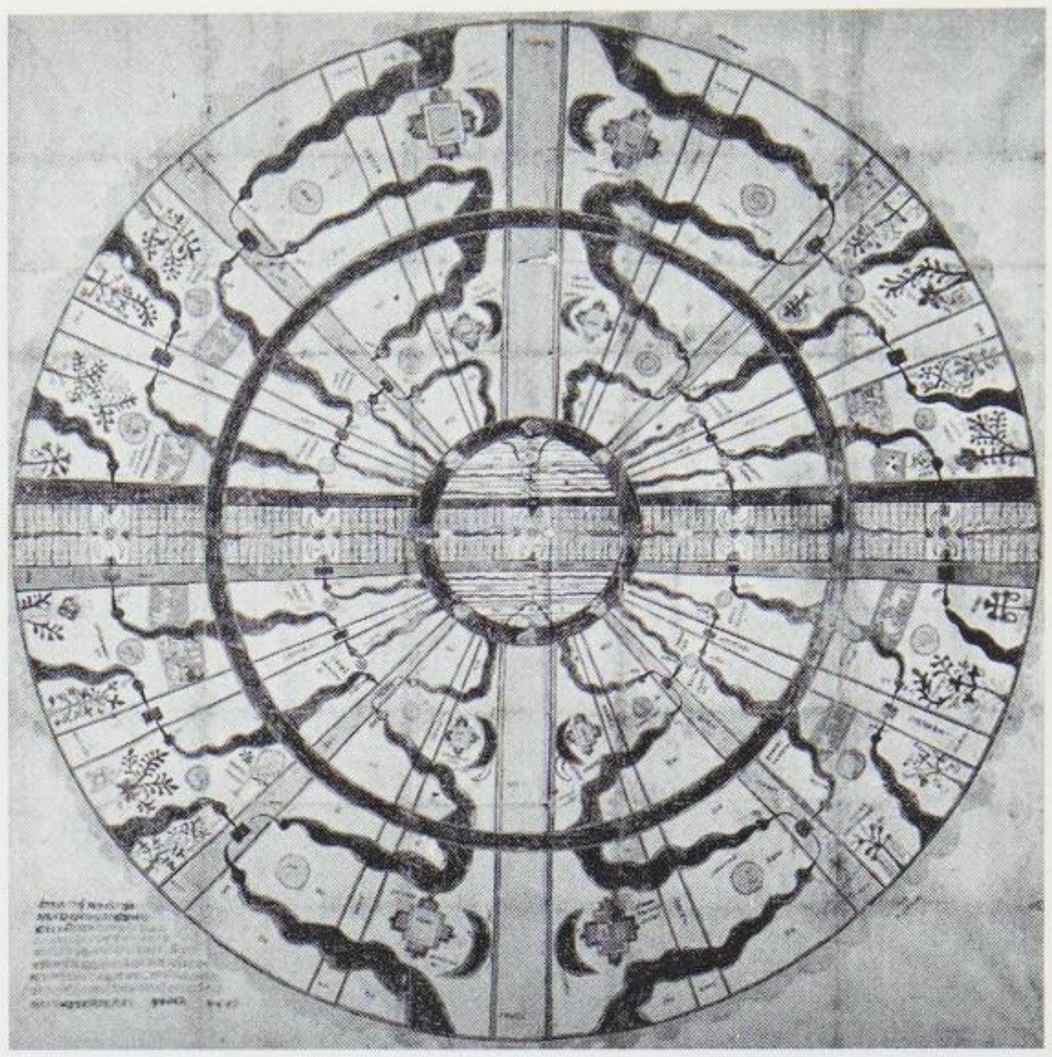
oceans, mountains, and Mount Meru in the centre. It is possible that some sort of a plan is being discussed, but such mentions cannot be taken as conclusive of early mapping in India until an example from this period is found, or more specific texts are discovered. Those that do exist seem to refer to the type of cosmography that was made later, not to actual maps of known areas.

Development of cosmographies

The cave painting [1] suggesting an early idea of the cosmos is the single example we have from that period. The importance given to religion in India from prehistoric times is well known, and is well recorded in the extremely large number of religious texts that have survived. Many of them included detailed geographical information, and modern scholars have deciphered most of the places named in these texts.[26] Whether any of the early texts included even rudimentary maps is debatable as what have survived are all late copies, since the original scripts were on perishable material. The larger cosmographies that have come down to us are mostly of a relatively late date, and were painted, usually on cloth, as wall-hangings. Various shapes were given to the world in the Buddhist, Hindu and Jain cosmographies, according to the theories being expounded. A popular one was that of a tortoise, *kurma*, and also of a lotus.

Many of the Jain world maps showed only a portion of the cosmos, that inhabited by man. A painted map of 1505 A.D. in the Calico Museum at Ahmedabad is described as follows: 'In Jain philosophy the *Madhya Loka* or Middle World is described as an infinite series of concentric circular bands which represent alternating bodies of land and water. In this *pata* only the inner two and one half islands of land where man is believed to exist have been depicted. It is a popular theme and is known as the plan of *Adhai Dvipas* (2 1/2 island continents) or *Manushya Loka* (Man's World).

'In the centre is the *Jambu Dvipa* so named for the *jambu* or blackberry bush which is the principle tree of the continent. At the core of *Jambu Dvipa* is a representation of Mt. Meru. The four tusk-like projections which emanate from the centre are mountain ranges known as the *Vidutprabha, Gandhamandana, Malyavata* and *Saumanasa*. The area in between these is called the *Bhogabhumi*, the land where the blessed beings live without working. On either side of Mt. Meru are the sixteen provinces known as the eastern and western *videhas*. To the north and south of the sacred mountain are seven *kshetras* or zones marked off by six ranges of mountains. From the top they are: *Airavata Kshetra, Shikri Parvata, Hiranyavanta Kshetra, Rukmina Parvata,*



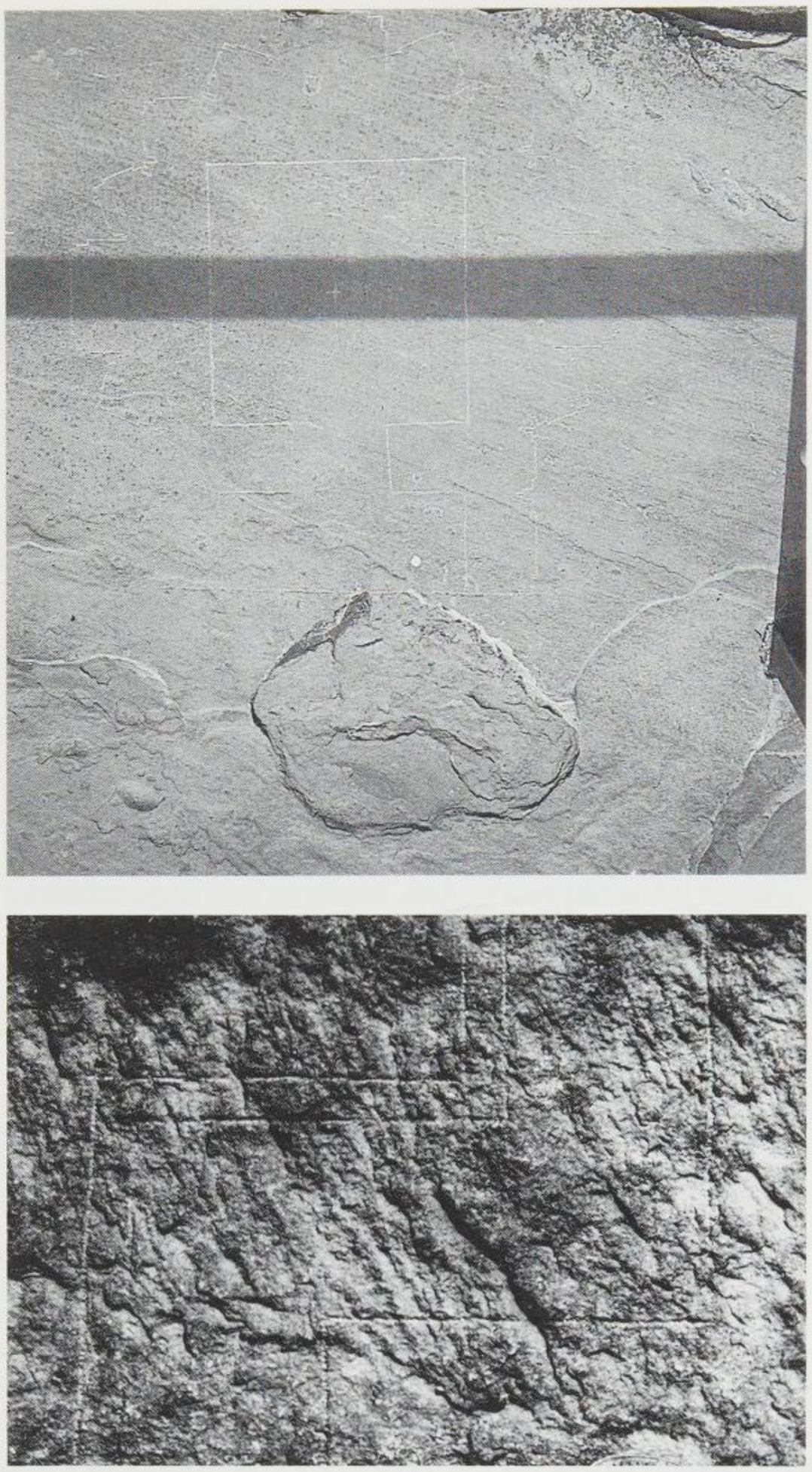
4. Diagram of Adhai Dvipas; this is an early example, dated Samvat 1562 (1505 A.D.) (By permission of Calico Museum of Textiles, Ahmedabad)
Size of the original: 105 x 114 cm; text language: Ardhamardhi; material: cloth; colours: red, yellow, green, blue and black, on white ground; location: Ahmedabad: Calico Museum of Textiles; No. 961; bibliography: Talwar and Kalyan Krishna, *Indian Pigment Paintings on Cloth*, p. 93, plate 92.

Ramyaka Kshetra, Nila Parvata, Videha Kshetra (containing Mt. Meru), *Nishadha Parvata, Harivasha Kshetra, Mahahimavanta Parvata, Haimanta Kshetra, Himavana Parvata* and *Bharata Kshetra*. Each *kshetra* contains two rivers which originate in the intervening mountains and flow into the ocean surrounding the *Jambu Dvipa*. The Ganga and Sindhu Rivers flow through *Bharata Kshetra* (India) which not unlike the other zones is further subdivided. The Jains are supposed to inhabit one sixth of the *Bharata Kshetra*.

'The ocean which encircles the *Jambu Dvipa*, the smallest of the continents, is the *Lavanha Samudra* or Salt Ocean. A number of islands emerge from the sea on which *devas* are believed to live.

'The next island continent is the *Dhakti Khanda Dvipa*. It is four times as large as the *Jambu* and contains two Mt. Merus and twice as many divisions. The main mountain range, the *Ishvakara* runs north-south dividing the continent into two equal portions. The remaining rivers and mountains form a radial pattern giving the continent the appearance of a spoked wheel. The rivers of the *Dhakti Khanda*

26. A good bibliography can be found in S. M. Ali, *The Geography of the Puranas*, 1966, New Delhi: People's Publishing House.



5. Ground plans of the temple at Bhojpur. Just visible above is the central square of the shrine, which holds the massive lingam, the alcoves all around, and the solid stone lintel at the door. Below are the lines etched on the ground rock at Bhojpur, showing how the rock was to be cut.

Dvipa flow into the *Kalodadhi Samudra* which surrounds the island.

'The third continent is *Pushkara Dvipa* or Lotus Islands. Man inhabits only half of this region. His portion is bound by the *Manusottara* mountain range which is here depicted by a scalloped outer edge.'[27]

This long description will give sufficient idea of what most of the Indian cosmographies contain. The few geographical details that were included were passed on from artist to artist, with no attempt to depict reality, or any new geographical knowledge. Traditional portrayal was obviously a more valuable aim than geographical information. With tongue in cheek Reuben Burrow told how at Kashipur he obtained 'a Map of the World made by the Bramins, & saw immediately from it what all the European world have for hundreds of years been puzzling themselves about; namely; the seat of paradise and the four sacred rivers.'[28]

Plans in stone

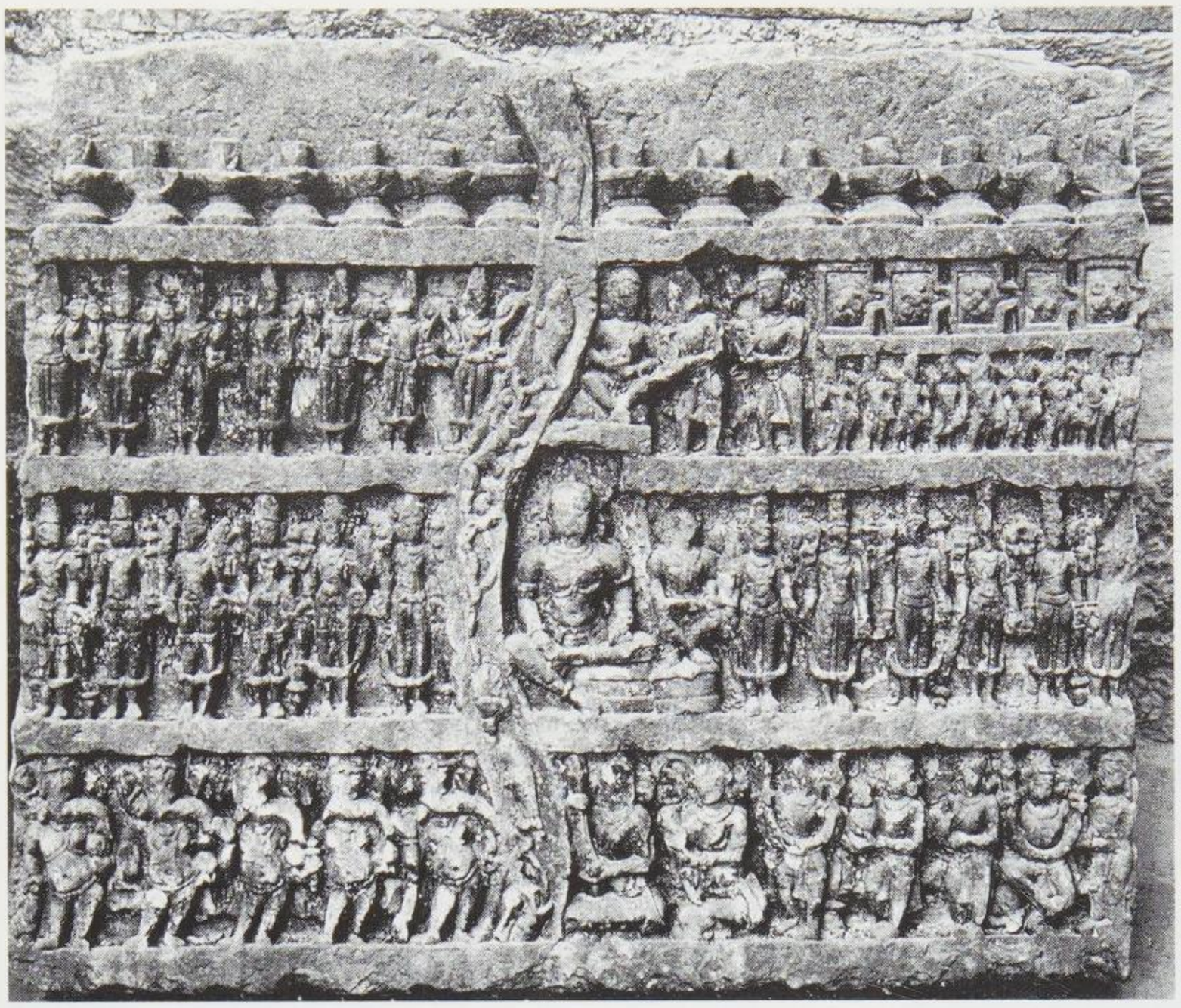
B. M. Pande has drawn attention to the temple plans that were engraved on the rocky hillside around the Siva temple at Bhojpur, Madhya Pradesh (28 km south-east of Bhopal). Writing of 'the explicit temple plans, elevations of the conceived structure, pillars, mouldings and other such components that come together in a temple', he added 'it is as though the entire surrounding area was an architect's drawing board.'[29] The temple was built by the legendary Parmar king of Dhar, Raja Bhoj (1010–53 A.D.), but was never completed, probably because of the sudden death of the king. The earthen ramp used to raise the huge blocks of carved masonry to dome-level is still there, so too are partly carved blocks, and the mass of lines etched into the solid rock of the hill. While many of them were probably made as guides to the stone-cutters, there are also detailed designs for the various pillars, and an elevation of the front of the temple. On a specially polished reddish stone, farthest from the temple, is a ground plan of the inner shrine. It is about two feet across, and clearly shows the solid stone lintel raised above the entrance floor, the central platform, which is raised about ten feet above the base, and the petal-shaped alcoves at ground level of the outer wall of the shrine. There are thus three distinct levels of the completed temple depicted in a flat plan.

Because the Bhojpur temple was never completed, the surrounding hillside still bears the architectural plans. The Nilakanthesvara Mahadeva temple at Udayapur 80 kilometres north-east of Bhopal was built at the same time, completed, and is still in daily use. Here some of the paving-stones of the courtyard bear similar designs, and probably many more are concealed on the under-sides of the slabs. Once the building was done, then the same stones which had provided the architect with his 'blueprint' were then used where required, in surrounding court-

27. Kay Talwar and Kalyan Krishna, *Pigment Paintings on Cloth*, 1979, Ahmedabad: Calico Museum of Textiles, p. 93.

28. Quoted in R. H. Phillimore, *Historical Records of the Survey of India*, 1950, Dehra Dun, Vol. I, p. 156. Burrow (1747–92) was a mathematician and astronomer who went privately to Calcutta in 1782. He soon found employment with the East India Company and was well known for his scientific work, and for his rumbustious behaviour.

29. B. M. Pande, 'A Shrine to Shiva; an unfinished house of prayer in Bhojpur' in *India Magazine*, 1986, Vol. VI, p. 33.



6. The 11th century stone carving depicting the town of Varanasi. The river Ganga flows through the centre, and in bands on either side are figures symbolising deities associated with the city.
Original in Archaeological Museum, Gwalior Fort; Acc. No. 285. Size of original: about 1 metre high.

yards, or perhaps cut further for house construction. Pande reports similar engravings at the Siddhesvara Mahadeva temple at Nemawar in Dewas, also in Madhya Pradesh. It is possible that the practice of drawing plans on the hillside was carried on at other places in India, but if so, it has not been observed, or perhaps they were all obliterated.

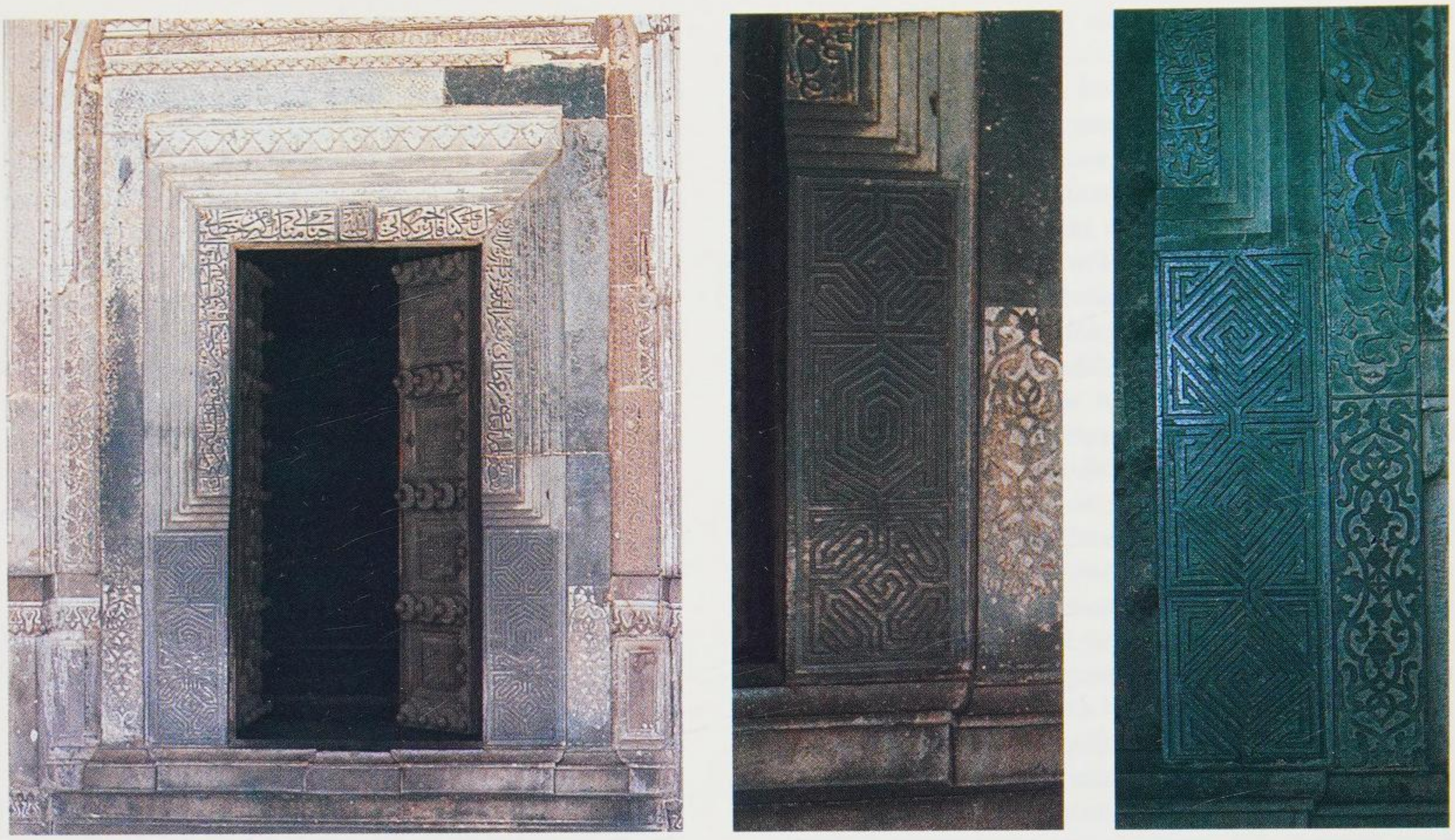
From the same period as the Bhojpur architectural plans comes a stone slab with a symbolical representation of Varanasi (Uttar Pradesh). N. P. Joshi has deciphered the meaning of the figures depicted on it, with the help of a Jain work on architecture and iconography called *Aparajitaprccha* by Bhuvanadevacarya, assignable to somewhere between the 12th and the first half of the 13th century.[30] The river Ganga divides the slab in two vertically, flowing from south to north as it does at Varanasi, and on either side in bands are symbolised the places to be visited by a Hindu pilgrim during his peregrination of the holy city. According to the Jain text, such stones were made so that devotees who lived far from Varanasi or were unable to take a dip in the holy river, might worship the stone at their place of residence, and thus earn equal merit. While not in itself worthy of the term 'map' this stone is perhaps the forerunner of the painted maps of holy cities taken home by pilgrims, and still on sale in a modified form today. Or perhaps such perishable forms of the pilgrimage sites were also available even then, but it is the stone slabs which have survived. Joshi reports other slabs of Prayag (Allahabad) and Gaya.

On the walls of the great temple at Konarak in Orissa, ground plans of the temple have been found that may possibly date from the time the temple was constructed. Other plans have been seen on palm leaves, as well as elevations of the temple.[31] It is not certain, however, whether they are actually from the time suggested, or were perhaps added by over-eager local treasure-hunters.

Plans of a very different type are to be seen at Bijapur in Central India. The story runs that the king Ibrahim Adil Shah II (ruled 1580– 1626) bragged so boldly about his power over the river Krishna, making it flow behind him even to his city, that the river took umbrage and dried up. The king apologised and the river agreed to appear wherever the ground was dug. So in this town on a plateau between two valleys water began to flow so strongly that nineteen cisterns supplied the whole town with a complicated system of siphons at different heights, even bringing water to the third storey. Legend has it that the Ethiopian engineer, Malik Sandan, who built the

30. N. P. Joshi, 'Varanasi-Silapatta, a unique depiction of Varanasi in sculpture', to be published in Krishna Deva Felicitation Volume.

31. Some of these plans can be seen in Alice Boner and Sadasiva Rath Sarma, *New Light on the Sun Temple of Konarka*, 1972, Varanasi: Chowkhamba Sanskrit Series Office. Plate 84 gives examples of elevations and plans from palm-leaf manuscripts found at Konarak.



7. Intricate patterns beside the doors of Ibrahim Raza at Bijapur are said to provide a key to the water channels of the city. On the left, the east door; centre, detail of the right side of the east door; on the right, right side of the south door.

king's tomb, the Ibrahim Roza, showed in the form of a maze the patterns of these water channels on either side of the four doors to the tomb. Certainly each pattern is different, and the design can be traced from the outer edge to the centre, and then joins at the opposite point on the other panel. Whether they are actually plans will remain a matter for faith, but they are recorded here as another possible form of map or plan, so that any similar ones found elsewhere can be recognised.

II. RELIGIOUS MAPS

Geographical charts

Before discussing maps which are recognisably such from a western point of view, a form of chart which is in some ways like a map will be considered. There is no record when such charts were first used, and I have not been able to find any account of them. They are in the form of a square, with Ujjain (Madhya Pradesh), one of the seven sacred cities for Hindus, in the centre. On all four sides divided by step-like rules, are named the places as they occur in order from the centre, with the eight points of the compass named. Figures are given beside each name, but it is not known to what they refer. Ujjain was marked as the first meridian by early Indian geographers, though this was later moved to Varanasi and then Kurukshetra (Haryana). Alongside an example at 8 the Oriental Research Institute at Bikaner (Acc. no. 22377), the text calls such a design a *phalchakra* (astronomical diagram) to be used in *puja* (prayer), and also as a *yantra* (amulet, mystical diagram) for the king. It was Gargacharya of the mythological period, who showed how such yantras should be made. In the *Puranic Encyclopaedia* it is recorded that at Gargasrota on the banks of the Saraswati river Garga did *tapas* (penance), and discovered some principles of astronomy, such as the path of the planets, and the stars. He was the chief astronomer in the assembly of the emperor Prthu. In another reference, he spoke to Yudhistahira about the greatness of the world.

One entirely unsubstantiated suggestion for their use, is the need to establish the coordinates of the birthplace for travellers who wished to have their horoscope drawn. For this it would be necessary to

know the distance and relationship to Ujjain of the place of birth.

The first such chart that I saw was found for me by Vyakul Sharma in his museum at Jaipur. It was 9
not complete, but by comparing it with those at Bikaner, it was possible to establish the extent of the places named. In the north are Sadanath and Kedaram. In the north-east are Gwalior and Mathura. In the south-east are Champaner, and further round, the sea. South is the sea, with Raner and Surat. In the south-west are Hinglaj, Shiraz and Mecca. In the west are Samaija and Dhar, while in the north-west (missing, but supplied from the example in Bikaner) are Kabul and Nagrakot. Many other places are of course also named though it is hard to fit most of them into a known frame, according to their placing in the chart. Some places have also disappeared now, or are known by different names. The order of their placing too, does not fit their actual positions. It may well be that these charts were not drawn for a geographical purpose, but for some other reason connected purely with astronomy which is unknown to us now. Another example can be seen at the Abhaya Jain Granth Bhandar, Bikaner; it is decorated with pink flowers and green leaves, and dated Samvat 1785 (1728 A.D.).

According to B. M. Jowalia of the City Palace Museum, Jaipur the copy found at Jaipur dates from the mid-17th century. This is based on the style of some of the letters, and the fact that Ratlam is included, which was founded by Jaswant Singh of Jodhpur in 1663. Dr Jowalia showed me a later chart of the same type that was published in 1941,[1] but here 11
Jaipur was placed in the centre, and the eight gates in the city wall were named in place of the compass directions in the central square. Since there were fewer towns named, there was room to write beside each the distance in *cos* from Jaipur, and the titular owner of each town and jagir.

A simplified version of the type is found in a manuscript dated Samvat 1703 (1646 A.D.). In this example Sojat is in the centre, and the area covered 10
is much smaller, a single district in the state of Marwar. Sojat was an important market and religious town, being at the centre of the nine forts of the state. The manuscript in which this chart appears, a book of historical tales of the state called Aihasik Bateir, was written by Sundarsi, brother of Mohonot Nainsi who wrote *Marwar ka Pargana ri Vijat*, a gazetteer of Marwar state, the modern Jodhpur. Twelve directions are given on the chart, and in each of the twelve divisions are listed the villages that are found there. Many of them can be located on a modern large-scale map. Unlike the other charts, the writing is to be read from one side only, with east at the top.

Jain maps

Pictures that are more akin to maps are the Jain vijnaptipatras. These were long scrolls, depicting towns and the way there, painted as invitations to Jain pontiffs to spend the monsoon season in the town, and so bless it with their presence. One seen in the Abhaya Jain Granth Bhandar (Bikaner) is
12 from Udaipur and dated Samvat 1887 (1830 A.D.).
13 Another, from Jaiselmer, is in the Oriental Institute at Baroda. It is 23 cm wide and about 12 m long, with text in Sanskrit. The names of the monks who sent the invitation are in Gujarati language and script, and it is dated 1859 A.D.

Many of the traditional types of religious map are from the Jain community. The Jains maintained extensive libraries, and placed a high value on learning and tradition. They did not adhere to the secrecy of the brahmins, and their books were open to those who wished to study them. For this reason more Jain material has survived, but it cannot be categorically stated that the Hindus did not also have such a tradition which has now been lost.

The Jain religion encourages pilgrimages to sites made holy by their saints. Among the most popular are Parasnath Hill in Bengal, Mount Abu in Rajas-
14 than, and Palitana and Girnar in Gujarat. Many paintings of these holy places have survived, some in the form of views, while others are more plan-like in their depiction. Around the inner wall of their temples too, pictures of the holy towns were painted, and continue to adorn the temples today. As their colour wears dull, they are repainted, so most of those now visible are modern versions. Their purpose was to inspire pilgrims to visit other sites, as a check-list, so they could recognise where they had already been, and feel encouraged to complete the whole round of holy sites. Much of the symbolism used in these pictures is unrecognised by those who have insufficient knowledge of the Jain religious texts. Moti Chandra has described a Panchatirthi in the collection of the Jain Tadapatriya Pustak Bhandar.[2] The date is given, 1433 A.D., and it was painted by two artists from Champaner. It is in the form of separate episodes from the life of the Jain saints, and the background, which is part view and part map, can be recognised from the symbolism. In episode 3 are the Pandavas with their wife Draupadi and mother Kunti. According to Jain belief they attained

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1. This was probably published in a Hindi article, 'Jaipur raje sarkar aur jagirdar' in *Hitaishi*, 1941–42 Dec–Jan, a religious journal. The chart is now loose, and no bound issue of the journal has been seen. It was stated that the map had been drawn 125 years before its publication in the journal.

2. Moti Chandra, *Jain Miniature Paintings from Western India*, 1949, Ahmedabad: Sarabhai M. Nawab, pp. 45–51.

salvation at Shatrunjaya, so the town of Palitana can be named. The following episode confirms this since it shows pilgrims beside a tank at the foot of a hill. The tank is assumed to be Lalitasarova, built by Vastupala-Tejapala, so the town is again Palitana, at the foot of the hill of temples, Shatrunjaya. Similarly when a temple of Mahavira Swami is painted, it must be that at Pavagarh near Champaner. As Moti Chandra commented: 'It is difficult to say whether the paintings reproduce exactly the Jain temples as they existed in various centres of Jain pilgrimage, though it must be admitted that the painter shows great familiarity, at least, with the temples of Satrunjaya. Anyway, the pictures give us a vertical elevation of the Jain temples as it were.' They in fact give us more than an elevation, as many of them show in considerable detail what can only be called a plan of the temple area. B. N. Goswami has called this the 'balcony view' since it is not from the height of a bird, nor is it from ground level.

Hindu maps

Similar paintings of Hindu pilgrimage sites are also frequently found. The rich pilgrims could order maps to be specially prepared for them, as some of those in the Jaipur Palace collection seem to be, while the poorer ones bought smaller pictures that had been painted in bulk. The temple of Nathdwara is one of the most holy sites, since it has the original idol of Krishna which was brought there from Mathura when Aurangzeb threatened to destroy it. Several pichhvais, pictures usually on cloth to be hung be- 16
hind the idol in the temple, are in the form of maps/views of the city.

Vraj, the birthplace of Krishna, has been the sub- 17–21
ject of maps of various types. Sometimes they are fancifully drawn in the shape of a leaf or lotus, others are more realistic in their depiction, with recognisable geographical features. Even in the more artistic type the river Jumna can be seen with the large loop it makes at Mathura. The devout pilgrim would visit all the eighty-four sites made holy in the Krishna legends, and then take home a map to show where he had been. As in some of the Jain maps, a knowledge of the religious texts is necessary for recognition of all the symbols.

Other religious sites were also depicted in maps for the pilgrim to take home. The map of Badrinath
22 from the Jaipur collection appears to have been drawn by an inhabitant of that state, yet it was probably based on maps already available at the mountain shrines. Today there are maps of the pilgrimage routes based on surveys, but still with the appearance of these pre-survey maps.

The very finely drawn map of Dwarka on the west-
31 ern tip of India that is in the Jaipur collection is in a style of its own. To date no other map has been found that can compare with it, yet there are some features which remind us of the Jaipur maps. It is completely different from another map of the same
30 shrine, that of Sankhodar from the Prince of Wales Museum at Bombay. From eastern India, maps of
23 the temple of Jagannath at Puri follow the style of those of Nathdwara and some of the Vraj *pichhvais* (cloth hangings behind the idol). Maps of Varanasi are divided into two types. The modern ones follow
26 the Nathdwara style, while a very large map in the National Museum, New Delhi, gives far more detail.
25 It is crowded with pilgrims, who are shown completing the seven circular routes laid down by traditional ritual.

Another map in the National Museum was drawn to show a specific pilgrimage, this time of the valley
29 of Kathmandu in Nepal. It is dated 1802 A.D. and records the progress of Chikidhi, his wife, their two children and several others through the valley as they visited every important Buddhist shrine. The figures of the pilgrims are shown several times at different stages. Topographically the map is fairly correct, oriented with north at the top, and with a scale which varies to accord with the importance of the site.[3]

Another painted temple map has not been ident-
28 ified. From the geographical features it accords with the island temple of Sriranga near Tiruchirapalli in south India. But the idols in the painting are Shaivite, whereas the Sriranga temple is Vaishnavite. No other temple site appears to fit the geographical features, yet it is inconceivable that such a mistake can have been made. It remains a riddle.

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3. N. R. Banerjee and O. P. Sharma, 'A Note on a Painted Map of the Kathmandu Valley at the National Museum, New Delhi' in *Marg*, 1987, Vol. XXXVIII, No. 3, pp. 77–80.

III. GLOBES AND WORLD MAPS

Globes

None of the globes that have survived are from an early date, so it is difficult to know whether globes were known in India before the coming of the Europeans. The earliest that I have seen is dated Saka 34
1493 (1571 A.D.) according to its Sanskrit chronogram. It has been fully described by Simon Digby[1] and is in the form of a thin brass box of depressed spherical shape 10 inches in diameter. Such containers were common, and Digby presumed that the shape had suggested the form of decoration, not that there had been first an attempt to depict the earth. The bhugola (literally 'earth-ball') 'is covered with representational decorations, divided into bands, circles, rectangles and segments, and varied by inscriptions, sometimes set into rectangular panels.' The geography shown on this bhugola is that of the *Puranas*, but modified to suit the known round shape of the earth, not the flat disc of the Puranic texts. The equatorial line divides the continent of Jambudvipa in the upper half from the bands of continents and seas of the *Puranas* in the lower half. At the Equator theoretical distances in yojanas are inscribed. (A yojana is a distance driven at a 'yoking', about nine miles.) There are figures engraved all around the box, which, apart from minute images of the deities, are in no way devotional. They represent the 'delights of the fertile earth, whose omnipresence outside Bharatavarsa the *Puranas* themselves emphasize'. On the part representing India, there are traces of similar decoration having been erased; in its place are geographical names.

This globe is important since it shows the Hindu idea of the world, not that of the Jains as most of the extant examples of early world maps do. Another Hindu globe has been reported by M. P. Joshi of the Archaeological Survey of India, but it has not been possible to examine it, or obtain photographs. However the bhugola is the only globe known to predate the visit of the Jesuits to the Mughal court at Agra in 1580, when it is known that they presented an Atlas to the emperor Akbar.[2] When Sir Thomas Roe visited the emperor Jahangir in 1615 one of the gifts he took was the latest edition of Mercator's world atlas. He wrote that it was not understood by the nobles at the court, and was returned. Several miniature paintings from the reign of Jahangir show the emperor either standing on a globe, holding one in his hand, or using it as a footstool, and these are all European globes, not Hindu or Jain.[3]

32 A larger globe of a type showing features similar to the bhugola described above is in the Bharat Kala Bhavan, Varanasi. It is made of papier maché, hollow inside, and about 43 cm in diameter. The lower portion is based on the *Skanda Purana*, while the upper part shows India with a coastline similar to that of the Ptolemaic maps. There are many names inscribed in the subcontinent, but other parts of the globe are not marked. Since Calcutta is named, it is presumed that its manufacture was later than 1690, though the name Callecotta appears on European maps from the middle of the 16th century, long before the founding of the English town by Job Charnock. The absence of Jaipur and inclusion of Amer indicates a date prior to 1727. It was probably made for Sawai Jai Singh, who built an observatory at Varanasi, and at other places too, and had studied European books on astronomy and geography. That such globes, part Puranic and part modern, conti-
33 nued to be made is evidenced by an example in the Victoria and Albert Museum, London. This one is made of wood and heavy, though under seven inches in diameter. It is presumed to be from Orissa, and has been dated to the mid-19th century.

Buddhist maps

Buddhist pilgrims from China had made maps of India after their visits there in search of religious books. They are known now only from later copies and it is interesting that their maps named the inhabited world Jambudvipa, as did the *Puranas*.

Hirosi Nakamura reported that an encyclopaedia compiled by Tchang Hoang (1527-1608) contained a

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1. Simon Digby, 'The Bhugola of Ksema Karna: a dated sixteenth century piece of Indian metalware' in *AARP*, 1973, Vol. IV, pp. 10–31.

2. J. S. Hoyland (tr.), *The Commentary of Father Monserrate, S. J. On his Journey to the Court of Akbar*, 1922, Oxford University Press, p. 8.

3. These paintings have been published many times. 'Jahangir's Dream' has been illustrated in Stuart Cary Welch, *Imperial Mughal Painting*, 1978, New York: George Brazillier, Plate 21. The original is in the Frere Gallery, Washington, with 'Jahangir using a globe as a footstool'. In the Los Angeles County Museum can be seen 'Jahangir on the globe'. In the Chester Beatty Library, Dublin, can be seen 'Jahangir with a globe in his hand' and 'Jahangir shooting an arrow while standing on a globe'. (Abstracted from Welch, op. cit.).

Buddhist map of Jambudvipa that had been copied from an earlier one with the caption, 'Since the map of the book Fo-tsiu- t'ong-ki does not represent clearly the shape of the world, I show here the world according to a Buddhist work, although Buddhist attempts are not as a rule convincing.'[4] This must have been based on the map from the Si-yu-ki by Huang Tsang of the 7th century. Nakamura refers to a similar map in Hosyoin temple in the Siba Park at Tokyo, which was reproduced as a frontispiece in the second volume of travels by Yu-ho Den, entitled Seieki Zu, 'Map of the Western Regions'. This was accompanied by two manuscripts, also reproduced in the book, which give the source of the map and collate and correct the inscriptions it contains. 'According to these documents Hiuen-tchoang, while on his travels in the Indies, found the original map, and, after marking on it in vermilion ink the route he had followed, he placed it in T'sing-loung-tseu (Blue Dragon) temple at Tch'ang-ngan, then the capital of China. Huei-kuo (746–805) chief priest of the temple, presented it to Kukai (774–835), his best Japanese disciple, when he returned to his own country. He placed it in the Tozi temple, which he founded at Kyoto. Much later a priest named Komatudani presented it to the 41st chief priest of the temple Zozyozi at Yedo.' This is the only reference I have found that suggests that the Chinese maps of the Western regions were based on one brought back from India, and not drawn by the Chinese travellers themselves. Since there is a well-documented tradition of cartography in China, and none in India, it is possible that the pilgrims took back Indian cosmographies, and then inserted the known place names, but it cannot be ruled out that there were attempts at making geographical world maps in India at the time, which have since perished, along with all knowledge of them.[5]

Another reference to Indian maps in Chinese manuscripts has been recorded by Joseph Needham: 'Fan Wen-Thao notes that Shih Pi brought home from Java in the early Yuan period (before 1297 A.D.) a map of the country, and in 1372 A.D. the king of a place which Feng Cheng- Chun has identified as Coromandel sent one.'[6] Feng Cheng-Chun was quoting (in 1937) from the Official Histories of the Yuan (1279–1368) and Ming (1368–1644) dynasties and according to Haraprasad Ray 'there should be no doubt about their authenticity.' He comments further, 'It was the custom for these smaller kingdoms to send maps of their 'land, mountains and rivers' to the imperial court of China while sending envoys with presents (called 'tributes' by the Chinese). It was perhaps considered auspicious, and also satisfied the vanity of these kings who did not have any idea about the extent of Chinese territory.'[7] It should be remembered that in India it is the superior who gives gifts to the inferior, so if a map really did go to China in 1372, the king of 'Coromandel' would have thought he was bestowing honour on the king of China. There is at present no known trace of such a map.

Copies of Arab maps

World maps from further west were copied in India, but at a much later date than those of the Chinese. As the English were settling into India in the first half of the 19th century there was a vogue for having Indian manuscripts copied, in the original Persian or Sanskrit, for shipment back to England. In a 19th century copy of a 16th century Persian translation of Kazvini's *Ajaieb al Makhloucat*, Wonders of
37 Creation, a map was inserted into the manuscript, based on the original drawn by Kazvini in the 13th century, but with major additions. The Arab map had shown the shores of the Indian Ocean, but to the north only the names known to the Arab world were included. In the Indian version, there is a large lake in the place usually occupied by Mt Meru, and from it flow four rivers, thus conforming to the Puranic maps.

36 The map in another copy of the Kazvini manuscript, brought back by Sir Robert Chambers, Chief Justice of the Supreme Court of Judicature of Bengal, was published by William Ouseley in 1799. It too showed the large lake and four rivers. Ouseley deduced that it was of Indian origin: 'Although the manuscript, from which I have extracted the annexed map, is beautifully written in the Persian character and language, yet it is evident, from various circumstances, that it is a transcript made in Hindustan; had the work been executed in Persia, it is not probable that the name of Iran would have been omitted in the map.'[8] Ouseley supposed that the map had been

4. Hirosi Nakamura, 'Old Chinese World Maps preserved by the Koreans' in *Imago Mundi*, 1947, Vol. IV, pp. 3–22.

5. A Buddhist map of India has been illustrated in colour in Hugh Cortazzi, *Isles of Gold*, 1983, New York: Weatherill, Plate 11. It is from a manuscript dated 1364 and preserved at Horyuji, Nara, in Japan. It is called 'Gotenjikuzu', Map of the Five Regions of India. Several Chinese maps of India have been illustrated with transliterations in Sven Hedin, *Southern Tibet*, 1922, Vol. VIII. Plate XI is 'Map of the Western Countries and India', a Buddhist map published by Chih- p'an in 1269–71. Plate XII is 'Map of Jambudvipa' published by the priest Jen Ch'ao in 1607. Plate XIII is 'Map of the Western Countries' according to Sants'ai-t'u-hui in 1607. Plate XIV is 'A Chinese-Japanese Map of Central Asia and India chiefly from the travels of Huan-chuang and I-ching published in Japan in 1710'.

6. Joseph Needham, *Science and Civilization in China*, 1959, Cambridge University Press, Vol. III, p. 561.

7. Personal communication.

8. W. Ouseley, 'Account of an original Asiatick Map of the World' in *Oriental Collections*, 1799, London, Vol. III, p. 75.

'drawn by some Indian artist acquainted with the European settlements in various parts of Hindustan, as he has marked the ships of Portugels, Ingriz and Oulandiz . . . From the relative situation of Istamboul, Constantinople, and Portugal, with the outline of the Mediterranean Sea, I am inclined to believe that the artist had seen some old European map or chart.' There is far more of the Arab map in this copy than of a European chart of the period, so possibly Ouseley's opinion was not correct.

Another Indian copy of an Arab map was pub- 35
lished by Edward Rehatsek in 1872 and thus preserved, though the original is not traceable: 'This Persian Map of the world (of which I have made a fac-simile, keeping everything exactly as it was drawn in the original, and translating only the writing or transcribing it in Roman characters) was in a dilapidated state and is of no great value except as a curiosity, since documents of this kind must make way to correct geographical notions, and must very soon disappear altogether; the only way of rescuing them from total oblivion is to insert them in some journal. The owner of it was a Muhammadan from Jumner in the Bombay presidency, but could give no clue as to who drew the map and when.'[9] Luckily Rehatsek was able to preserve at least the form of the map, if not the original.

A third map of this type was found recently in a 39
bazar in Delhi, as a piece of waste paper. Called 'New World Map', it shows extensive land knowledge, but little of the sea routes. Africa is an island called simply 'Cape Island'. The map's modern origin is proved by inclusion of such names as Iceland, Lapland, and Edinburgh, (not in Scotland, also named, but in England). Such a map perhaps shows the continuation of an old tradition trying to accommodate new information, and not very happily.

A very beautiful map that may be from the Dec- 38
can, or possibly from Jaipur, is now in Berlin. The text is in three languages, Arabic, Persian and Hindi, and it is suggested that it was made in the second half of the 18th century. The colourful miniature paintings that adorn it, as well as the large number of toponyms and Devnagri script in the part representing India suggest its Indian origin. South is at the top of the page, as it was in many of the maps from Arabia, and in the Indian ocean is a Portuguese ship. A. K. Das bases his suggestion of a Deccani provenance on the style of dress in the miniatures, and the lettering of the Devnagri. Calcutta is named, but then it was in European maps as early as that of Gastaldi in 1565, and referred to a small village near the site of the later town; but in place of Jaipur is Amber, which argues for a date before 1727, though not conclusively since the map may reflect outmoded knowledge. Who made it, and at whose orders, remains a mystery, and yet surely an artist who could produce such a fine work would have been known and recorded somewhere. Possibly more such maps will now be discovered, and valued instead of being discarded, as was that found by Rehatsek and mentioned above.

Astrolabes have not been included in this volume. That they were made in India since the time of the early Mughals is known, but whether that was a foreign input needs to be examined.[10] At a later date globes were made in India based on European globes and atlases, but with text in Hindi or regional languages. They have also not been included here.

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9. Edward Rehatsek, 'Fac-simile of a Persian Map of the World, with an English translation' in *The Indian Antiquary*, 1872, repr. 1971, Delhi: Indological Book Reprint Co. , pp. 369–70.

10. Two articles on Indian astrolabe makers have been sent to me by J. E. Schwartzberg: Syed Suleyman Nadvi, 'Some Indian Astrolabe- Makers' in *Islamic Culture*, 1934, Vol. IX, pp. 621–31; and Gaston Wiet, 'Une Famille de Fabricants d'Astrolabes' in *Bulletin de l'Institut Franåais d'Archéologie Orientale [of Cairo]*, pp. 97–99. A celestial chart, 'Diagram of the path of the planets', has been published in *Marg*, Vol. 35, No. 4. The original is in the Victoria and Albert Museum, London, where it is described as mid-18th century, 160 x 48 cm, from Deccan or Tamil Nadu.

IV. TOPOGRAPHICAL MAPS

Indian topographical maps fall into several distinct categories, mainly based on the region from which they originate. Thus the Mughal maps are very different from the Maratha coastal maps, and the pargana maps of Kashmir bear no relation to the long scrolls of the route from Kandahar to Shahjahanabad. Except for the earliest Mughal maps, the others were all made after there had been a large inflow of European ideas into India, and most of the local rulers were employing foreign military personnel, even if only for casting cannon. The styles of the maps, however, are so different from those of Europe, that it cannot be said they owe their creation solely to foreign competence. Many of the soldiers of fortune who found their way to the Indian courts were unskilled and some even illiterate. Though most of them learnt to speak the local language, few could read and write it. This interest among the foreigners, especially the British, came largely towards the end of the 18th century, when there were enough of them who remained settled in one place for a long period, and there was a more educated demand from home for information about the strange habits and peoples across the sea.

Mughal maps

The earliest series of regional maps that are known to have been made in India form part of an encyclo- 40
paedic work called Shahid-i-Sadiq, by Sadiq Isfahani. It was completed in 1647 at Jaunpur, Uttar Pradesh. Irfan Habib has given a full description of the work, and traced the influences that led to the 64
form in which the maps were presented.[1] He calls it a 'cartographic development, in linear descent from Hamdullah'. Hamdullah Mustaufi had drawn maps of Iran and the world in the early 14th century, using a cylindrical projection and information from coordinates rather than the route distances of the earlier Arab geographers. Sadiq's maps were also a great improvement on the single regional map of part of India that had been made before, that of Sind from the Islam Atlas, which survives in copies by Abu Zaid al Balchi (died 934 A.D.), Abu Isak al Faresi or commonly Istakhri (produced in 934 A.D.), Persian copies of Istakhri (from 950 A.D.), Ibn Haukel (c.980 A.D.), Mohamed ben Ahmed Mukaddasi (died 988 A.D.), Ahmed el Tus (1175–94 A.D.), and Nasir addin Tusi (1210–73 A.D.).[2]

In his appraisal of Sadiq's atlas Habib commented on the number of mistakes made by the scribe who transcribed the only complete copy that remains, probably in the 18th century. There are other copies of the text, but they lack the maps or are incomplete. He continues: 'These maps are breath-taking in their coverage and arrangement: they form a World Atlas. The first map is a map of the inhabited Quarter. This is followed by 33 'sheets'. i.e. maps covering different segments each delimited by different meridians and parallels, very similar in manner to modern survey sheets whose coverage too is defined on the same principle.'

Whether this atlas was one among several, or a unique development which had no influence on other geographers, must remain a mystery. Another 41
Mughal map that has survived is very different in style. This is on two sheets and covers most of northwest India, Afghanistan and Sind, from Delhi to Kabul, from Kashmir to the sea. It is known only from a copy made at the end of the 18th century (according to the watermark of the paper) though R. H. Phillimore considered that it had originally been made between 1650 and 1730.[3] It is obviously based on the measured distances that were so carefully made by the Mughal administration between all towns, and provides far more information than was available to the British even by the end of the 18th century when James Rennell was making his large maps.

A map that is somewhat similar though from a 64
later period, probably about 1770, covers central India. It has the same sort of rectangular boxes to mark towns, and lines for the roads between them, but apart from rivers no other geographical features are shown, and no distances are given. Instead the emphasis is on the revenue that might be expected from each pargana and to whom it belonged at the time.

There are plenty of references in the literature to the very exact knowledge that the Mughal adminis-

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1. Irfan Habib, 'Cartography in Mughal India' in *The Indian Archives*, 1980, Vol. XXVIII, pp. 88–105, reprinted from *Medieval India — A Miscellany*, Vol. IV.

2. Extracted from Conrad Miller, *Mappae Arabicae*, 1926, Stuttgart, Vol. I.

3. R. H. Phillimore, 'Three Indian Maps' in *Imago Mundi*, 1952, Vol. IX, pp. 111–14.

tration had of the country. The *A'in-i Akbari* written by Abul Fazl and completed in 1598 had listed every pargana (administrative area of one or several villages) according to the sarkar (district) it was in, noted the revenue and extent, and added many other interesting details. Whenever the emperor moved with his retinue, a set of officials went ahead to survey the route, build bridges where necessary, decide on a suitable place to set up the camp, repair the road if it had become unserviceable, and to note the exact distance between each village. All this information was meticulously recorded, and the records preserved. So far, however, no references to maps and their use have been found which relate to the imperial movements. Rather, there is frequent mention of the use of guides familiar with the country, and sometimes to their mistakes. In the Akbar Nama one such mistake is attributed to luck: 'Malik Ashraq Gujrati was added as a guide, as he was acquainted with the country. On that swift journey the guides went wrong owing to a design of Providence. At last the path was found by the illumination of the son of fortune [the emperor] and they went on still more rapidly.'[4]

When W. H. Sleeman was collecting evidence against the Thugs in the 19th century he found that memories for routes and places were long and exceedingly accurate. A murder which had been committed fifty years previously and not reported at the time to the police, was described independently by three participants, with exact details of the location. The authorities were then able to exhume the bodies at the place so designated by the thugs, purely from their account of the road and its position. Yet throughout Sleeman's records there is not a single mention that the Thugs, many of whom were brahmins and literate, made use of a map, despite their very detailed knowledge of the roads. Their areas of operations were wide, and it was not uncommon for a group from Madhya Pradesh to travel to Gujarat, commit murder and theft, and then return quietly home, with even their families ignorant of where they had been and why.[5]

This dependence on guides and personal experience of the route has been recorded throughout the centuries in India. There are references in the *Ramayana* to the guides who went ahead of the army, with topographers and surveyors, and to Bharat employing guides to show him the route to Chitra-kut. In the Jataka tales (stories of the previous births of Buddha) too the use of guides is mentioned. Caravan leaders appointed aboriginals to act as guides and protect the caravans, and elsewhere a guide took the help of the stars.[6] When foreigners came, they had no difficulty in obtaining accurate descriptions of the geography of India, the routes, mountains, rivers, political boundaries, market towns, and any other information they sought. This is shown by the accounts of foreigners from the time of Alexander,[7] and does not necessarily preclude the use of maps for travelling purposes, but it does appear that they were not required for direction finding, or while attempting to convey information. The very detailed itineraries seem to have served well enough in place of maps.

From the reign of Jahangir (1605–27) there are references to what might have been maps. In the *Tuzuk-i Jahangiri* the emperor is reported to have repaired the fort on Hari Parbat at Srinagar, built by his father, and to have had the walls of a gallery adorned with pictures. 'On the walls of the outer hall stages of the road to Kashmir were recorded in the order in which I had come to them.'[8] Nothing now remains, except a blank wall with modern graffiti, but the long wall of the gallery, above a small courtyard, would have been well suited to depicting a route map, or perhaps it held separate plans or views of towns along the way. Particular mention is made of the artists who accompanied Jahangir on his travels, especially to Kashmir, and their adornment of buildings with pictures.[9] How far they were map-like is not known; possibly they were not, since no miniature paintings from this period show cartographic features, except foreign globes.

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4. *Akbar Nama*, tr. H. Beveridge, 1973 (repr.), Delhi: Rare Books, Vol. III, p. 18.

5. The interrogations were published in full in W. H. Sleeman, *Report on Budhuk alias Bagree dacoits and other gang-robbers by hereditary profession*, 1849, Calcutta, J. C. Sherriff, and *Ramaseeana, or a Vocabulary of . . . Thugs*, 1836, Calcutta, Military Orphan Press. In reply to the question, Have they any written treatises on augury? when asked about the omens consulted before a raid, Feringeea, a Thugee leader, replied: 'None; they never consult books; they learn all from tradition and experience.' (*Ramaseeana*, p. 150.)

6. *The Ramayana*, ed. and publ. Manmatha Nath Dutt, 1892, Calcutta, Vol. I, p. 411. See also Moti Chandra, *Trade and Trade Routes in Ancient India*, 1977, New Delhi: Abhinav, p. 54 for quotations from *Ramayana* and pp. 56–62 for quotations from *Jataka*.

7. Claudius Ptolemy's *Geographia*, written in the 2nd century A.D. gives very detailed information about towns, rivers and mountains of India, and their coordinates. This enabled maps to be drawn which in many respects were surprisingly accurate. Since the Greek and Macedonian visitors saw little of the country for themselves, this information must have come from local inhabitants who knew their country well. Subsequent visitors were also able to obtain detailed information, which is reflected in the early European maps.

8. *Jahangiri, or the Memoirs of Jahangir*, tr. Alexander Rogers, ed. Henry Beveridge, Delhi: Munshiram Manoharlal (repr.), n.d.,Vol. II, p. 162.

9. Linda York Leach, 'Painting in Kashmir from 1600–1650' in *Facets of Indian Art*, ed. Robert Skelton et al., 1986, London: Victoria and Albert Museum, pp.124–31.

Route maps

A single manuscript of the itineraries that were so common, and so helpful to foreign visitors, has been decorated with map-like drawings. This is the *Cha-* 42
har Gulshan, 'a condensed history of India with descriptions and statistics of the several provinces and the lives of holy men' that was written in 1759 A.D. by Rai Chaturman Saksena.[10] Certainly by this date anyone living near the foreign settlements might have seen European maps, yet the cartographic features of the manuscript cannot be said to have been taken directly from any exotic source. The lack of other itineraries being so adorned, however, may imply that this was a single instance, and in imitation of some source now lost.

Two copies of a route map have survived, unac- 43
companied by any itinerary, though the route was well described by several authors. They show the 58, 59
road from Kandahar to Shahjahanabad and are noted as having being drawn by Maulvi Qulam Qadir who accompanied Elphinstone there in 1841. Again they form a single instance of such a map, and it is not known whether they were part of a tradition or not. The only other map somewhat similar is a long
scroll of the Ali Mardan Khan canal that was con- 44
structed in the 12th century to bring water to Delhi, and lengthened and enlarged several times later. There is no record as to who drew the map, for what purpose or when, but it might possibly have been towards the end of the 18th century.

Two maps of a more conventional (western) style, though similar in the area they cover, are very different in style. One is almost entirely in black ink, 45
with just a little colour for trees, and is concerned mainly with routes and distances. It covers an area of approximately 450 miles from south to north, from Ahmedabad to Ajmer, and about 150 miles from west to east. No scale is shown. The square coloured
map of Gujarat and Rajasthan on the other hand is 48
more decorative, more informative, and according to R. N. Mehta, made by someone who knew the whole area very well.[11] His date of 1720–1765 on internal evidence would fit it with the maps made at Jaipur, though the style has no counterpart among the Jaipur collection. Two other maps of Gujarat from later 46, 47
in the century were drawn by Indians, but were most probably made to order for Europeans.

Kashmiri maps

The part of India which has the largest number of maps is Kashmir. Why this should be so is not known, and no reasonable conjecture can be put forward at present. The maps differ widely in style, but most are very detailed and give a fairly accurate depiction. The large cloth map at Jaipur has no text 49
except the title on the back of the map, while the
50 cloth map in the British Library has a name for every village. The former has no roads shown, while the latter is full of them. Yet both are very different from the thirty-three maps in the *Tarikh-i-Kala Kashmir*.
51 These show every pargana, with emphasis on the rivers and mountains, but no roads, and very few buildings. They belong to a history of Kashmir that was probably written at the request of Mihan Singh, Governor of Kashmir under Maharaja Ranjit Singh in the first half of the l9th century. At this time there were many French officers in Ranjit Singh's army, but there does not seem to be any foreign influence
53 in these maps. One map in the Srinagar S.P.S Mu-
52 seum and another in the India Office Library seem to be of the same style, but both are loose sheets, and their provenance is unknown.

The very large series of *tirtha* (springs of holy water) maps from Kashmir are again in a class by themselves. Though late in date, probably about l860, they reveal no foreign influence; they are part map and part view, but show enough of a bird's eye view to be included among the maps. The titles and legends are in several languages, the predominant being Nepali written in Devnagri. Persian has been added to some of the titles, and a few of them also have Bengali text. The only manuscript which might be connected with them is in the Bhandarkar Oriental Research Institute, Pune; this is a fragment (No. 61/1875–76) about the tirthas, but makes no mention of maps having been made to illustrate them.

Shawls embroidered with maps are another unique product of Kashmir. No record has been kept of the original map from which the design was taken, but the first such shawl was probably that made for Ranjit Singh which took thirty-seven years to complete, by which time the maharaja was dead. Needleworked shawls were first made at the beginning of the 19th century, before that date the patterns were woven and not embroidered.[12] The one made for

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10. Two copies with the maps intact have been seen, at Aligarh Muslim University, and at National Museum, New Delhi. A partial translataion of the text can be found in Jadunath Sarkar, *India of Aurangzeb*, 1901, Calcutta, Bose Brothers. Sarkar described the style as a 'terse and precise, . . . set of notes rather than a finished treatise.' He noted that the topographical notes were mainly from the *A'in-i Akbari*, with a little additional information. No study to compare the route maps with either the text or modern maps is known.

11. R. N. Mehta, 'An old map of Gujarat' in S. K. Bhowmik (ed.), *Reflections on Indian Art and Culture*, 1984, Vadodera: Dept. of Museums, pp. 165–169.

12. John Irwin, *The Kashmir Shawl*, 1973, London, Victoria and Albert Museum, p. 3. By 1800 the shawl trade between Kashmir and the West was well established, and there were European agents settled there. Whether they were already dictating designs is not known.

Ranjit Singh seems to have started a fashion as several are known from later in the century. One sent as a gift to Queen Victoria was embroidered with English lettering. Whose was the idea for such an ambitious task is not known.

Maps of South India

The number of maps from south India is much less than from the north. Anquétil du Perron (the renowned French oriental scholar) searched for them when he was in India in the middle of the 18th century and found very few. One of those he did manage to find was published in transliteration by Johann Bernoulli in 1787, but the original can no longer be traced. In its published form, it is more like one of the missionaries' maps than a truly Indian one, even though Anquétil du Perron said it had been made by brahmins. In his *Zend-Avesta* Anquétil du Perron made three references to maps that he had had copied during his travels.[13] At Cochin in January 1758, he recorded: 'Je priai aussi le Père Anastase de me faire copier la Carte de l'intérieur & de la Côte de cette partie de la Presqu'Isle de l'Inde, qui étoit entre les mains de M. Bless.' Two months later, at Goa, 'J'allai aussi voir le Secrétaire Carvalho, que l'on m'avoit dit posséder quelques Cartes du Pays; il me communiqua le plan de Bombaye & celui de Gria, dont je tirai copie.' The map he found at Bombay in April 1761 is probably that reproduced by Bernoulli: 'M. Spencer avoit bien voulu me communiquer une grande Carte de l'intérieur & des côtes du Sud de la presqu'Isle, faite par des Brahmes; je venois d'en achever la copie.' However, under the heading 'Livres que je n'ai pu avoir' he lists 'des Cartes Géographiques faites par les Naturels du Pays', so possibly the maps he had copied were of European origin, except the one of south India. Even that might have been made to order for the missionaries, as were the two published in *Lettres edifiantes et curieuses*.

Father Bouchet had noticed how correctly Indians knew their direction and route, without the aid of maps.[14] He wrote in 1719: 'Je diray icy en passant que j'ay souvent admiré la connoissance parfaite que les Indiens ont des Rhumbs de vent: il n'y a pas jusqu'aux Enfans qui n'en soient instruits. Qu'on dise à un Indien le chemin qu'il doit tenir par rapport à tel rhumb de vent, il ne se trompe jamais. Je me suis fait quelquefois un plaisir en marchant avec eux, de m'eloigner tant fois peu du Nord, ou bien d'un autre rhumb de vent ou nous devions aller, à peine avois-je fait quatre pas, qu'ils reconnoissoient l'erreur.' Anquétil du Perron found the same directional intuition, and gave examples of how he tested it, by asking people to point to the direction of places they knew well, and to state in which direction they were. He found the answers correct in every case.[15]

Maratha maps

Use of maps by the Marathas has been established, but no early examples that survive have been dated, and it is likely that many more still exist which are not easily accessible. If they could be found or made available to scholars, it would perhaps be possible to fit them into a pattern, and so learn more of map-making in India at the time.

Many of the references to maps in the Mughal records are from the campaigns against the Marathas in the second half of the 18th century. During the reign of Aurangzeb maps were commonly used for military purposes, and to illustrate campaigns. After the siege of Purandhar Mirza Raja Jai Singh, the commander of the Mughal army, sent a plan to the emperor to show him how the attack was carried out: 'In the night before 11th of June I sent word to Dilir Khan and Kirat Singh that by the next dawn they should carry the malchar [standard] of our heroic troops to a place which bears two white marks (in the plan sent to the Emperor), in front of the trenches of the enemy.'[16]

In another letter Jai Singh mentioned a map he had sent to the emperor on a separate sheet, about the attack on the fort of Khadkala.[17] While giving advice to his son Prince Mahammad Aazam Shah Bahadur about the granting of titles, Aurangzeb wrote: 'When a list of the newly appointed persons

13. J. H. Anquétil du Perron, *Zend-Avesta, 1771, Paris, Vol.* I, Pt. 1: p. 186, I also requested Father Anastase to get me a copy of the map of the interior and the coast of this part of the peninsula of India that was with M. Bless.; p. 214, I also went to meet Secretary Carvalho since I had been told that he possessed several maps of the country; he showed me one of Bombay and another of Gria, of which I made a copy.; p. 438, Mr Spencer wanted to show me a large map of the interior and the south coasts of the peninsula, made by some brahmins; I have just received a copy of it.; p. 541, Books that I was unable to obtain: Geographical maps made by natives of the country.

14. *Lettres edifiantes et curieuses*, J. du Halde (ed.), 1722, Paris, p. 38. By the way, I will tell you that I have often admired the perfect knowledge that the Indians have of the rhumb lines. They are all instructed in this since childhood. If an Indian is told which road to take with reference to the direction of the wind, he never makes a mistake. While travelling with them, I have frequently enjoyed myself by deviating a little to the north, or to some other direction from the one we should follow; before I have gone scarcely four paces, they realise the mistake.

15. *Zend-Avesta*, Vol. III, Pt. 2, p. 115, quoted in Susan Gole, *India within the Ganges*, 1983, New Delhi: Jayaprints, p. 22.

16. Jadunath Sarkar, *House of Shivaji*, 1955, 3rd edn, Calcutta, p. 138, translated from *Insha-i-Haft Anjuman*, a collection of letters drafted by Udairaj Munshi, secretary to Rustam Khan and later Mirza Raja Jai Singh. This quotation comes from a letter from Mirza Raja Jai Singh to the emperor Aurangzeb about the storming of Purandhar in June 1665.

17. Jadunath Sarkar, *House of Shivaji*, 3rd edn, p. 133.

and of additional titles or "jaghirs" is brought to me (for reference), you should bring before my presence four or five officers in the evening when I am looking at the maps of provinces and the designs of buildings in the courtyard of the "Ghosal Khaneh", so that after examining the character and lineage of everyone I will issue an order for "jaghirs".'[18] Unfortunately none of these wall maps have survived, and we do not know what form they took.

Some of the sketches must have been sufficiently detailed for the emperor to grasp the strategy to be followed, and it is known that he took a keen interest in such matters and demanded frequent dispatches. He was able to make suggestions, without having been to the site himself. To Asad Khan he wrote: 'I saw the plan, sent by him (i.e. Ruh Allah Khan), of the entrenchment of the fortress. The side for the entrenchment is good; and in many ways, it is better than other sides. But from the absence of a ditch (in the plan) it appears that outwardly the ground must be strong. It will be difficult to undermine [this stony ground]. Two or three bastions and ramparts must be raised . . .'[19]

The importance Aurangzeb gave to maps is repeated in this letter about his sister's property: 'You should write to me about the condition of all the gardens and buildings of the forts of Mubarak, Sahibaabad, Aaza-abad, Nur-bari, and Saharand-bari which belonged to [my] dear and dignified sister, and of other places, with the details of plants and trees, from the time when this traveller [i.e. Aurangzeb himself] went out of the capital till now, along with the condition of houses, [and in such a manner] as if I saw them with my own eyes [i.e. so vividly]; nay, you should send me a map thereof.'[20] This was written to Asad Khan, as was another letter in which the emperor ordered Asad Khan to send to Ruh Allah Khan a copy of the map as he had requested.

It has been reported to me that in another letter to Mirza Raja Jai Singh, Aurangzeb emphasised his reliance on maps to know the territory of his enemies. Jai Singh had agreed in the terms of the treaty he made with Shivaji after the surrender of the fort of Purandhar in 1665 that the Maratha leader would be permitted to retain twelve of his 35 forts. Aurangzeb objected to this, writing that he knew of the advantage possession of such forts would bring, since he had had the area surveyed and mapped while he was subedar of the Deccan.[21] Unfortunately these maps are known only from such references, none of them are to be traced now. The Italian Nicolai Manucci was with Mirza Jai Singh during this campaign, but since he does not mention use of maps, or his assistance in their preparation, it cannot be presumed that he was influential in their adoption as aids in strategy.

It has not been possible (for lack of language ability) to search the Marathi records for references to maps. Whether there are any is therefore not known. An interesting point was noted, however, in the inventory made after Shivaji's death. Among his possessions he left 'White paper 32,000 quires; Zar-afshani (paper sprinkled with gold dust) 11,000 quires; Balapuri paper 20,000 quires; Daulatabadi paper 2,000 quires.'[22] This of course relates to his stocks of unused paper, but neither here nor among his other effects is there any mention of maps. If there were any, they were either not accounted among private property, so not listed here, or were considered too insignificant to warrant a mention. The conclusion seems to be that they were not in common use at this time.

The large number of Maratha maps that remain have unfortunately not been fully studied or accurately dated. Even their whereabouts is now difficult to ascertain. C. D. Deshpande studied 'twenty and odd maps' in 1953 when they were at the Prince of Wales Museum, Bombay; only that of Vijaydurg is
63 still to be seen there. Some of the others are said to have been transferred to Satara, but are not there now. In 1980 six sketches of forts, three coloured maps of coastal areas, and two maps of the peninsula were seen in a private library at Pune, which is no longer open to scholars; one of the large maps was even then in a very poor condition, and has possibly disintegrated completely by now. On the other hand the few that went to England are well preserved and available for study; they are reproduced here. Most of the others can only be recorded from information already published; these descriptions are quoted in full, since it was not possible to include photographs, and they may help in the original maps being traced.

D. V. Kale described the crude sketches of hill-forts and named them as Chandan, Sajjangad, Nandgiri, Agad, Vandan and a sixth unknown.[23] He felt that the directions given on them were broadly true, and that they had been drawn as 'a temporary device to note administrative details', such as the num-

18. *Ruka'at-i-Alamgiri or Letters of Aurangzeb*, J. H. Bilimoria (tr.), 1972, Delhi: Idara-i-Aadabiyat-i-Delhi, p. 68; from Letter LXX to his third son, Mahammad Aazam Shah Bahadur, in which Aurangzeb is quoting advice given by Shah Jahan.

19. Ibid, p. 121, Letter CXXI to Asad Khan.

20. Ibid, p. 116, Letter CXVII to Asad Khan, and p.99, Letter XCVII also to Asad Khan.

21. This sentence was quoted to me in 1982, and I have been trying to track it down since then. It is not in any of Jadunath Sarkar's translations, nor in the collection of Aurangzeb's letters in Paris, Bibliothèque Nationale, Suppl. Persan 476.

22. Jadunath Sarkar, *House of Shivaji*, p. 189.

23. D. V. Kale, 'Maps and Charts' in *Bharata Itihas Samshodhaka Mandal Quarterly*, 1948 Oct–Dec, pp. 60–61.

ber of men on the watch. The writing is in Modi, and to be read with east at the top of the page (unlike the Marathi town plans in the India Office Library, which are to be read from all sides). He felt that the coloured maps of coastal areas had perhaps been made for disputes about property. They show village lands and *taluqs* (administrative areas), with the names written in black ink in oval spaces. Large trees abound, the rivers are full of fish, and detailed drawings of ships fill the sea. They measure approximately 60 x 90 cm and are brightly coloured. Kale also mentioned a ground plan of Shanwar-wada, the palace of the Peshwas which was burnt down in 1827.

Of the maps described by Deshpande,[24] that of Vijaydurg has been reproduced here. Of the other 63 plans of fortifications, Deshpande listed Bhudargad, Janjira, Badami and Seringapatam. They were oriented towards the east, and written in Modi with some additional Devnagri. (Modi was the script used at the Peshwa court as a secret language, not to be deciphered by the Mughals.) On the Bhudargad map there was 'a good deal of written matter . . . the condition of the moat and the state of water are precisely described; gates, paths, gun positions are shown, with notes on their recent repairs; measurements of fortified features and their dove-tailing into natural precipices are given in Haths. The condition of fresh water supply inside the fort and of the arsenals is also indicated in writing. Altogether the plan, the symbols, and the lettering employed in this map are so effective as to leave the reader in no doubt about the purpose of this map, which was to indicate the state of efficiency of Bhudargad as a fort.' The plans of Janjira and Badami were more rudimentary, but also included attempts 'to show relief by lines, a faint suggestion of contours, and by lettering inside to show hills.' Deshpande dated the Seringapatam map from internal evidence of the buildings, which were drawn in great detail, to the period between the death of Haider Ali and capture of the town by the British in 1799, a time when the Marathas were engaged in wars with Tipu.

Deshpande also described five maps showing larger areas, which he called by the following names, since they bore no titles: the Gujarat-Kathiawar, the Bhima-Malaprabha, the Poona-Madras-Kaveri Delta, the Hyderabad, and the West Coast-Krishna-Tungabhadra. In the Gujarat-Kathiawar map, 'the shape of the Kathiawar Peninsula is much distorted; similarly, major rivers are shown, but crudely in double lines. Strangely, the sea along the Kathiawar coast, too, is shown by two parallel lines as though it was a river. Relief features even of a major character such as the Girnar Hills, receive no mention, but the Rann is shown in its area by a rectangle and lettering within. Routes are not shown. The chief interest of the map lies in the multitude of place names it embodies. Lettering is proportionate to the importance of the place. Larger towns and cities like Ahmedabad, Broach, and Surat are inscribed in bold letters and "boxed" in thick lines. Smaller towns, mostly seats of Prants [provinces] and Parganas, receive a differential lettering according to their administrative status, each carrying with it a suffix of Prant or Pargana as the case may be. The position of these places is generally correct in so far as they are indicated by letters, but there is no "pin-pointing" by means of dots. There is no statement of scale, but a calculation of the distance between Ahmedabad town and the tip of the Cambay Gulf shows the scale to be 1″ to 5 miles approximately.' Deshpande thought that this was 'a political map of a feudal power which depended more on its hierarchy of officials than on the territories it governed. Clearly the boundaries of Prants and Parganas were not so important as the officers-in-charge themselves. In practice, therefore, the territories and their limits hardly mattered, the administrative headquarters of Prants and Parganas were worth knowing, and the owner of this map was evidently interested in the location of these administrative centres.'

The Bhima-Malaprabha map Deshpande described as a sketch of the river system, with the names of places of interest to the Marathas, but no hill features. He found 'the information so scanty and sporadic' that it was not easy to gauge the purpose of the map, beyond indication of the valley routes in the Maratha campaigns. The same purpose seems to have been behind the map of Poona-Madras-Kaveri delta: 'a route map intended for operations in Hyderabad, Mysore and Kaveri regions, where the Marathas were interested in the middle of the eighteenth century.' It is possible that this map is now in the Bharata Itihas Samshodhaka Mandal in Pune, or another similar to it, which was seen there some years ago. Deshpande noted the large number of places names in the Hyderabad and Kaveri delta regions, and the sparsity in other areas; he also felt that the lettering of 'Madras' showed it to have been added later. Places of religious sanctity had been included, such as Mahabaleshwar, Gokarn, Shree Shaila and Shree Rangam, and on the routes from Poona to Hyderabad and the Karnatak distances in cos had been given. The Hyderabad map was similar, but with lettering in Devnagri.

The West Coast and Krishna-Tungabhadra map was oriented to the west, and had a better carto-

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24. C. D. Deshpande, 'A Note on Maratha Cartography' in *The Indian Archives*, 1953, Vol. VII, pp. 87–94.

graphical presentation. Hills were shown in purple, rivers in blue, place-names in red circles, the more important carrying a double circle. Forts were more boldly shown in red circles. Vegetation was pictorially shown in green. From this description, it appears that this map may have been similar to maps in the Jaipur collection, which date from the first half of the 18th century, though Deshpande thought the cartographical technique indicative of late 18th century influences. The very large map of the peninsula that was found in the family home of Nana Phadnavis, prime minister to the Peshwas in the second half of that century, and is now in shreds, provided detailed information on fortifications of the hill-forts, indicated by large stones, and also gave the distances in cos between them.

Other Maratha maps can still be seen. That of Vijaydurg is both decorative and detailed, showing all 63
the fortifications, as well as the internal buildings of the fort. There are also simple plans of towns and 98
wider areas, probably made during the Anglo-Maratha wars at the beginning of the 19th century. A rough sketch of the coast south of Goa stretching 66
about 12 miles inland was possibly made for the first British Collector of the region in 1799, according to R. H. Phillimore.[25] A map of central India was poss- 64
ibly of Maratha origin, though the writing is in Persian. In style it is akin to the Mughal maps, but probably dates to about 1770, according to names of rulers given in it. A Modi and Marathi map entitled 61
'Prithvichi naksha' (world map), shows the Indian subcontinent, with a few names of further places indicative of their direction, and links it with the Puranic conception of the universe. Another large map which was in too poor a state to be photographed is in the Maharashtra State Archives in Bombay. It is painted on paper, measures 212 x 270 cm, covers the area between Pratapgarh in the north, Mahabaleshwar in the west and Raichur in the south-east, and gives particular emphasis to religious sites. It is unusual in having the writing to be read in one direction, with north at the top of the map. Unfortunately the paint and ink is now so faded, and covered with poor lamination, that it is almost illegible.

It is possible that more Maratha maps will be found if search for them is made. How it came about that this one community is so rich in cartographic experience is not known. One can conjecture their need for maps of strategic importance for their campaigns, the possible number of Europeans in their armies, and the presence in India of so many foreigners by the time the Marathas were at the height of their power, the association with Jaipur, which is known for its maps from the end of the 17th century, and also their inheritance of the Mughal land administration and survey systems for taxation.

There is a map in the National Archives, New Delhi, called in the catalogue (F. 83/20) 'Map of Bundelkhand [in Urdu]. No scale. Not dated. MS' which might also be indigenous in origin. On the other hand it might well be a survey map made in the local language by European surveyors. It is about 120 x 220 cm, drawn on paper which has been pasted on to cloth. Rivers are shown in single lines and occasionally there are arrows showing direction of flow. Some English names have been added in pencil, others in the same ink as the Urdu lettering. There are many references to James Rennell. The very few roads that are marked are in pencil, and the whole map was first drawn in pencil, then inked over. A label pasted on the back gives a queried date of 1805-9. In his *Memoir of a Map of Hindoostan* Rennell had mentioned a 'Hindoo map of Bundela or Bundelcand, including generally the tract between the Betwah and Soane rivers, and from the Ganges to the Nerbudda' with the names in Persian.[26] Possibly this is the map used by Rennell, but if so it is likely that he would have taken it with him to England, where he wrote the Memoir and not left it behind in India. In 1804 the Surveyor General was complaining that he had not 'in this Office any Map of Bundlecund, as it is a Country which had until lately been unexplored by Europeans, and of which our Geographical knowledge is extremely limited.'[27] Yet the map now in Delhi was earlier in the Survey collection at Dehra Dun. It requires further study.

Two other maps which fall into the category of topographical maps are very different from those of
67 the Marathas. One is of central Asia and probably

25. R. H. Phillimore, 'Three Indian Maps' in *Imago Mundi*, 1952, Vol. IX, pp.1 13–14. The third map described in this article is a Bengali sketch of part of the boundary of pargana Habraghat in Lower Assam. It could not be traced recently in the National Archives where the other two maps are now kept. Phillimore thought that it had possibly been drawn by the Deputy Collector, with the lettering inked in by one of his Bengali clerks 'who was in no way a surveyor'. 'The purpose of the sketch is to indicate to the professional surveyor the general position of the lands of which he was to survey the limits.' It had been found on a page of a volume of correspondence of 1849 of the Revenue Surveyor of Goalpara District, Assam. When the text of a map is written in one of the Indian languages, it is easy to assume that the map was an Indian one, but in fact the European surveyors and Indians trained by them were drawing maps and using Indian scripts at quite an early date. A map in the Peshwe Dafta, Pune is written in Balbodh, the local version of Devnagri, and appears to be a Maratha map. On translation it turns out to be 'Map of the Duskrohic Purgunnah by Captain Cruikshank' made in 1825.

26. James Rennell, *Memoir of a Map of Hindoostan*, 1788, p. 156.

27. Survey of India Records, Dehra Dun, now in National Archives, New Delhi, 67(349), letter to Ens. James Hyde, Engrs, 5-12-04, quoted in R. H. Phillimore, *Historical Records of the Survey of India*, 1950, Dehra Dun, Vol.II, p. 48.

made in Nepal at the beginning of the 19th century. It covers a wide area, from Bulgar in central Russia to Iran and Kashmir. Distances are given between the towns marked and either Kabul or Nepal, but there is no key as to what the figures stand for. The other map is also linked to the Himalayan regions, 60
since it appears to show the march of Zorawar Singh, general in the army of Jammu kingdom, to the province of Ladakh, where he had been appointed deputy governor. If that is the subject depicted, then it would date the scrolls to the middle of the 19th century. They show a great deal of geographical information, but until they are fully studied, it is not possible to say how correct they are, or even to specify the area covered. Other maps from Nepal showed more influence from the Chinese than from India, except the map of the pilgrim Chikidhi in the Kathmandu valley already mentioned. 29

Surveys and mapping

So little textual material concerning mapping and surveying has survived, that it is doubtful if there ever was much in writing. As with many subjects, this might be because they were not thought to be of much importance, and taken as a matter of common knowledge, so there was no need to describe them, and it so happened that they did not occur much in other contexts.

Early European travellers, however, have left frequent comments about the wonder they caused when they appeared with their survey instruments. But this may have been simply that they were not proceeding in the way such work had been carried out before. To British requests that he allow a general survey of his dominions in the 1770s the Nawab of the Carnatic refused with the fear that it would 'cause a diminution of his Dignity and Honour in the eyes of the Neighbouring Powers and Foreigners.' He asserted that the country was abundantly well known, and there was no necessity for a survey.[28] To the Europeans, however, coming from outside, this intimate knowledge was denied, and they needed it put down on paper, spelled out in great detail, so that no ambiguity remained which might later be used against them. So much in India was strange to their way of thinking, and they thought that it was possible to change it all to suit their ideas. Their perplexity was summed up by Robert Kelly in 1782: 'The Natives of India never think of surveying large territories, or of settling their boundaries in anything like straight lines; . . . in the centre of a district fifty or sixty miles broad it is common to meet with villages belonging to the neighbouring districts.'[29] Yet André Wink has shown that in Maharashtra at least, detailed revenue surveys continued to be made based on those initiated by Todar Mal in the late 16th century. Whether maps were drawn or not, the people concerned knew exactly what land they were donating or receiving, how much it was worth, and where the boundaries lay. 'And since boundary disputes were rife it was also no luxury to make a special provision in the grant for the exact determination of the four boundaries, *catussima purvak*, a formula of which parallels are also found in ancient inscriptions relative to donations of land to brahmans and temples and which is also dictated by the smrtis.'[30]

Another problem faced by the Europeans was the varying orthography used for Indian place-names. As long as routes and owners of land were known mainly from oral record, it was difficult for the new administrators to be as precise as they wished. In an article on the adaptation of the Roman alphabet to the orthography of oriental languages a contributor (signing as H.T.P.) wrote in 1834: 'In order to show the consequences of this neglect, and to expose at once the absurdity of trusting to the ear in a matter of this kind, an extract is annexed from a map of the Dooab, compiled not ten years ago, and now in our possession: it bears the official signature of the surveyor-general of the day, and professes to be from the best materials then in the archives of that department. In this extract it will be seen that the well known road from Cawnpoor (Kanhpoor) to Ukburpoor is laid down double, being taken apparently from two routes made with compasses, or theodolites, varying in a small degree, so as to give a different direction, and the copyists of the surveyor general's department have not discovered that the routes are the same, because all the names are spelt differently.'[31] Indian people did not have this need to systematise everything and to get it down in (correct) writing, because the sounds to them were in no way strange. Similarly they did not need a map to tell them how to reach a place, because all along the route there would be people to guide them.

This argues against the use of maps, and yet Phillimore found that 'Political officers were often able also to obtain native maps and surveys: when Rind was Assistant to the resident at Delhi from 1785 to

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28. Phillimore, *Historical Records*, Vol. I, p. 3.

29. Kelly's Specimen Atlas, 1782, quoted in Phillimore, *Historical Records*, Vol. I, p. 242. Kelly (1738-90) was in the Madras Infantry. He laboriously prepared an excellent atlas of South India, but the East India Company declined to publish it.

30. André Wink, Land and Sovereignty in India, 1986, Cambridge University Press, p. 226. The *smritis* are texts containing knowledge that has been handed down, or remembered traditionally, as opposed to the *srutis* which comprise knowledge revealed.

31. H. T. P. 'On the Adaptation of the Roman Alphabet to the Orthography of Oriental Languages' in *J. of the Asiatic Society of Bengal*, 1834, Vol. III, pp. 281–88.

1787 he was able to get material for a Map of the Country of the Seiks, and a Plan of Scindia's Country.'[32] It had often been assumed that these measured routes were the nearest that the Mughals came to drawing maps, but now the discovery of so many examples of different types may dispel this view.

An experience of Francis Hamilton in Burma may be relevant here to show how difficult it is to understand past information. Hamilton had asked a Burman to draw a map of his province. 'This person's first attempts, as might be expected, were very rude. He began at a given place, say his native city, and, going on in a certain direction, he laid down the places occurring, until his paper afforded no more room. He then twisted round his line, until he completed the route with which he had commenced. Then he returned to the first point, and commencing with a second route, proceeded in the same manner, and continued so on until he traced the whole of what he intended. The remote parts were thus distorted in a most extraordinary degree. After some pains, however, he improved much'.[33] This was reported in 1821, and is sometimes quoted to show that there was no tradition of mapping in Burma, and by extension in other Asiatic societies (except among the Chinese and the Japanese).

The orientation, or lack of it, in Indian maps has puzzled many foreigners. Some maps are to be read from a consistent direction, often with east at the top, while others are to be read from all four sides. This eastern orientation has been traced back to Vedic times.[34] B. L. Gordon has shown, however, that in most early societies there was a reverence for the east, derived from early sun worship. Some Indian scholars have claimed that the importance given to east was unique to early Indian society, but it has been seen that almost universally the main axis was east-west, with east being the auspicious direction and west that for death. In Sanskrit plays the direction north indicated left, as directions were based on an actor facing east. Gordon has linked the origin of the words left and right to the words for north and south in Indo-European languages. The early Christians also put east at the top of their maps, but Muslims placed south there. The reason for this, according to Gordon, was two-fold: early Arab conquests were northward into the land of the culturally advanced Zoroastrians, where south was sacred; and the Muslim cultural centres were north of Mecca, so the Kiblah was to the south. The use of the compass also encouraged an orientation either north or south, though it was the north which became universally favoured. 'It seems a reasonable conclusion that north came to the top of the map for a combination of reasons — primarily doctrinal and traditional, and only secondarily pragmatic.'[35] In India, east remained at the top long after it had been discarded in other cultures, and within India it was the Marathas who maintained this tradition in their maps. It is interesting that the cosmographies which show some true geographical information all have north at the top. It is possible that the concept of preparing them followed the influence of the northern orientation.

32. Phillimore, *Historical Records*, Vol. I, p. 42.

33. Francis Hamilton, 'An Account of a map of the country north from Ava' in *The Edinburgh Philosophical Journal*, 1821, Vol. IV, p. 76.

34. Maya Prasad Tripathi, 'Solution of a riddle in Maratha maps' in *Studies in Humanities*, 1958, Allahabad University, Vol. II, pp. 54–56.

35. B. L. Gordon, 'Sacred directions, orientations, and the top of the map' in *History of Religions*, 1971, Vol. 10, Pt 1, pp. 211–227.

V. MILITARY MAPS

While many of the topographical and town maps were possibly made for military or strategic purposes, there are a few where this appears to be the primary aim, and they have therefore been collected into a group. A single early example looks at first 70
like a child's scribble, but it in fact contains detailed information about the topography to the north-west of the Indus river. The inscription informs us that 'Sultan Akbar has Maharaja and Kr Kishen Singh with him'. The Maharaja would be Jaswant Singh of Jodhpur while Kishen Singh was a prince from Jaipur. Aurangzeb was campaigning in Afghanistan from September 1674 to April 1677, and left Jaswant Singh there as the guardian of the Khyber Pass. So though this map has not been fully translated, it can be stated that it is from this period.

Five of the military maps are from the Maratha campaigns. Two are simple sketches in black ink which show the disposition of the opposing forces at
71 the time of the battles of Talegaon in 1779 and Khar-
72 da in 1795. That of Kharda has been studied by Kulkarni and Kantak who reported that: 'It indicates the

deployment of the Maratha and the Nizam's forces on the battle-field near the fort of Kharda, two days prior to the main action of the 11th March, 1795. Important topographical details like the names of the villages, the rivers, the nalahs, the ghats and the hills, etc. are shown very clearly. It is a dated map, therefore could be relied upon for its authenticity.'[1] They also describe a contemporary Marathi letter which recorded that 'Raghopant Godbole, in charge of the Peshwa's personal troopers (Hazrat), showed a certain map to Peshwa Sawai Madhavrao in order to acquaint the Peshwa with field positions of different commanders from both sides.' There is no proof that this is the map described, but the literary reference shows that such maps were in common use.

Since these two maps have survived, and since the Marathas were involved in so many battles, of which those at Kharda and Talegaon were certainly not the most important, one can assume that such maps were frequently made during or after the battle, and many more should come to light if a search for them is made. Many must have been inadvertently discarded, if their significance was not recognised. Kulkarni and Kantak mention a second map of the battle of Kharda which was published by Pissurlencar in his Marathi book *Portuguese-Marathe Sambandha* (but under the mistaken impression that it showed the Marathas opposed to the Mughals instead of the Nizam). This map was then among the Portuguese records at Panaji, Goa, but could not later be found.

A rather more decorative map dates from the Ma- 69
ratha campaigns at the beginning of the 19th century against the British under Lord Wellesley. It covers a wider area, and lays stress on the religious sites, especially those connected with rivers and their sources.

The large map of Dharwar fort is in quite a dif- 73
ferent style. According to K. N. Chitnis it was probably made in 1791, when the Marathas finally wrested the town back from Tipu Sultan.[2] On the back of the map we have a rare inscription recording who ordered it to be made, if not the actual cartographer. This was Visaji Narayan Vadadekar, the vakil of the patwardhan (agent of the town accountant) in the Peshwa's court at Poona. Nothing more is known about the map, but again one can surmise that more such maps must have been made, which are now lost. A map in the Jaipur collection was poss- 78
ibly a Rajasthani copy of a Maratha map. It shows the fort of Panhala and marks the distance of 10 cos from Poona and 20 cos from Satara. On the back a label has been added saying that it was received through the Darogha Sahibram on the 13th day of the bright half of Marg Samvat 1853 (A.D. 1796), but it shows the disposition of the Mughal army at the time of Aurangzeb's campaigns against Shivaji in the middle of the 17th century. The writing is in Dhundari of Jaipur, and may have been added later.

79 The very colourful map of Janjira was possibly made during the campaign in 1758-61 when the Marathas were again unsuccessful in ousting the Sidi from this natural island fortress. S. R. Tikekar who described it in 1949 felt that the Modi script had possibly been added at a later date, and 'had it not been for the names, the map would not have been useful at all.'[3] Without the lettering, however, it still gives a clear picture of the topography, even if the gun emplacements and storehouses were not named.

76 The mid-19th century map of Multan is from an interesting transitional stage between the Maratha battle plans of the previous century and the precise detail of later European records. One can surmise that it was drawn by an Indian sepoy of the British army sent into the besieged town in 1841 to gather information. How accurate his depiction was needs to be studied, but of more interest are the little bits of local colour that he could not resist including, such as an elephant, a sentry at his post, and a large tree.

Two maps from Jaipur form a complete contrast
77 in style. One, stark and plain, is titled simply 'Battle plan', and was perhaps used for instruction in the art
74 of war. The other, of a battle at Bhiwai, is bursting with life and humour, typical of the folk painting of the area. It may well have been made to illustrate some heroic deeds, and not for strictly military purposes, though it does contain much strategic information about the disposition of cavalry and infantry units, under their named commanders. However, it really falls under the category of folk painting more than cartography, and is included here in order to have it on record.

The maps reproduced here are those that have survived. References to others have been included among the topographical maps, in particular those made during Aurangzeb's campaigns in the Deccan. B. G. Khare of the Bharata Itihas Samshodhaka Mandal, Pune had talked of a pictograph in Udaipur Museum of the battle of Haldighati between Akbar and Rana Pratab Singh in 1576, which he said had cartographic elements, but it has not been possible to trace it. It would have been interesting if it were so, since it would predate the employment of large numbers of European freebooters in local armies,

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1. G. T. Kulkarni and M. R. Kantak, *Battle of Kharda — Responses and Challenges*, 1980, Pune: Deccan College, pp. ix-x.

2. K. N. Chitnis, 'Glimpses of Dharwar during the Peshwa period' in *Studies in Indian History and Culture*, Dharwar: Karnatak Education Board, pp. 262–69.

3. S. R. Tikekar, 'The Battle for Janjira' in *The Illustrated Weekly of India*, 1949, March 20, pp. 36–37.

and could thus certainly have been indigenous in concept and style. It has not been possible to trace any mention in contemporary European accounts of military mapping in India, apart of course from that of the British Company surveyors and engineers, yet it does seem likely that the large number of maps which date from a time when foreigners were roaming the country in large numbers, and the absence of any dated material from before their arrival, would suggest that they had a hand in their preparation, even though the style of execution remained indigenous, and unlike contemporary European mapping.

VI. SEA CHARTS

The tantalising references to charts found in use in the Indian Ocean by the Portuguese were for long thought to prove the existence of navigational charts among eastern sailors. Then opinion changed, and since no such charts had survived it was presumed that more was being read into the references than had in fact been intended. G. R. Tibbetts has come to the conclusion that, 'All in all, the evidence for indigenous maps in the Indian Ocean which could be used for practical navigation seems to be entirely negative. The so-called charts shown to the Portuguese were much more likely to have been literary compositions similar to those which have survived today in Arabic manuscript atlases and geographical works.'[1] Again, 'It therefore seems probable that the maps shown to Vasco da Gama were similar to those given in the manuscripts of Mustawfi and Hafiz-i Abru and could only have been of academic or popular interest.' Tibbetts points out that it was only in Barros' account of Vasco da Gama's voyage that mention was made of Arab charts, not in the earlier accounts of Correa and Castanheda, and since Barros' version contained much material that had been incorporated later than the events themselves, 'some doubt is cast on the accuracy of his statements.'

Barros had written that, 'a Moor of Gujarat named Malemo Cana . . . had shown him a map of all the coast of India, with the bearings laid down after the manner of the Moors, which was with meridians and parallels very small (or close together), without other bearings of the compass; because as the squares of these meridians and parallels were very small, the coast was laid down by those two bearings of north and south, and east and west, with great certainty, without that multiplication of bearings of the points of the compass usual in our (Portuguese) maps, which serves as the root of the others'.[2]

The extant Arab texts dealing with navigation preserve the advice that was available to sailors at the time, but make no mention of charts. In fact, there was probably little need for charts, since knowledge was handed down through the generations, and the sailors were practical men of the sea, not literary scholars. They used a system of mnemonics for guidance, possibly of the type that can be found still in use among fisherfolk of south India and the Maldives.[3] Were it not for the references to charts by the Portuguese, and earlier by Marco Polo, it might be safely assumed that the idea of navigational charts was of purely European origin.

The earliest surviving chart to show India's coasts is the Chinese 'cartogram' preserved in the *Wu-pei-chih*. This book relating to the art of war was found by George Phillips at Amoy in the 19th century. 'At the end of this work there is a set of maps said to be a copy of those used by Cheng Hô when he went on his expedition in 1416. Although these charts are stated to date from that time, there are to be found in them every place mentioned by Marco Polo on his voyage from China to Ormus, and I am inclined to think that charts, or charts of this nature, were in existence in Marco Polo's day.'[4] Without comparable material, it is not possible to say whether this chart was purely Chinese, or copied from charts found by the Chinese expedition while in the Indian Ocean. It would not have been possible to plot a course on it, and it is doubtful whether the terrestrial features that have been shown bear much resemblance to actual geographical detail. It may well have been taken home to China to provide a pictorial view of the

1. To be published in *History of Cartography*, Vol. II, ed. B. Harley and D. Woodward, University of Chicago Press.

2. Quoted by Tibbetts from H. E. J. Stanley, *The Three Voyages of Vasco da Gama ... from the Lendas da India of Gaspar Correa ... translated*, 1879, London: Hakluyt Society, pp. 13738; quoted from Barros (Decada I Liv. IV Cap. vi) by Stanley in a footnote to Correa's text.

3. Prof. B. Arunachalam of Bombay University has been collecting and recording the rhymes used by traditional sailors in their navigation, before they are lost in the change to mechanisation, as well as the old methods of boat construction and way of life among the fishing and trading communities.

4. George Phillips, 'Mahuan's Account of the Kingdom of Bengal' in *J. of the North China Branch of the Royal Asiatic Society*, 1895, July, p. 527.

course of the expedition.

Phillips drew an interesting conclusion from a statement in the *Wu-pei-chih*: 'The compiler of the Wu-pei saying that the countries, distances, etc., marked on this map, were entered carefully and correctly, leads one to infer, that he had recourse to other maps of the same countries to compare them with.'[5] He quotes Marco Polo: 'it has often struck me as not improbable that Marco Polo himself must have seen a map like that presented to the reader; for in Ramusio's edition of Marco Polo we come across the following: "He [M. Polo] will relate the strange things that he saw in those Indies, not omitting others which he heard related by persons of reputation and worthy of credit, and things that were pointed out to him on the maps of mariners of the Indies aforesaid." '

Once there was frequent European traffic in the Indian Ocean traditional methods of navigation were mostly abandoned. Intimate knowledge of the area, however, still led to accurate local sailing. When Alexander Burnes travelled up the Indus in the 1830s, he was impressed with the skill of the Cutchi sailors. He wrote: 'Among the timid navigators of the east, the mariner of Cutch is truly adventurous; he voyages to Arabia, the Red Sea, and the coast of Zanquebar in Africa, bravely stretching out on the ocean after quitting his native shore. The "moallim" or pilot determines his position by an altitude at noon or by the stars at night, with a rude quadrant. Coarse charts depict to him the bearings of his destination, and by long-tried seamanship, he weathers in an undecked boat with a huge lateen sail, the dangers and tornados of the Indian Ocean.'[6]

Burnes learnt that the use of the quadrant had been imported by 'a native of Cutch, who made a voyage to Holland in the middle of the last century, and returned "in a green old age", to enlighten his country with the arts and sciences of Europe. The most substantial advantages introduced by this improver of his country were the arts of navigating and naval architecture, in which the inhabitants of Cutch excel.' B. N. Goswamy has shown that the landscape painters of Cutch learnt their style by copying Italian engravings brought back by Ram Singh Malam, the 'native of Cutch' who travelled to Holland, and that he probably brought back navigation charts too.[7] If this is true, then the speed with which the art of chart-making was acquired is remarkable.

A chart of the Red Sea that Burnes brought back is at the Royal Geographical Society, London. Burnes labelled it 'A native Indian Chart of the Coast of Arabia and the Red Sea drawn by an inhabitant of Cutch and used by pilots at the present time in that navigation. Given to me by a pilot. Cutch, June, 1835'. B. Arunachalam has demonstrated how accurate this chart is for the coasts around the Gulf of Aden, which were 'reasonably precisely marked with distances and bearings'. The Red Sea shores, on the other hand, 'have only bearings and polar latitudes, but no sailing distance measurements; hence the configuration of the coast adjoining is somewhat less accurate.'[8] The fact that such charts were found to be in regular use in the early years of the 19th century, and by a community notoriously slow in adopting new techniques, shows that in all probability they were in use long before Ram Singh went to Holland.

It was generally accepted in the 19th century that Indians were not good sailors because it was forbidden for Hindus to cross the 'black water'. The term 'Arab' for any sailors plying in the Indian Ocean has obscured the fact that it is likely that many of them were from Gujarat or further south, and that they were originally responsible for methods of shipbuilding and navigation used later by sailors from Arab countries. In early literature there is ample evidence of Indian seafaring. Lotika Varadarajan has come to the conclusion that 'maritime activity in India was at no time straitjacketed by religious proscription despite the existence of an innate distrust of maritime oriented mercantile enterprise'.[9] She based her argument on both 'literary source material with some reliance on archaeological sources' as well as 'oral testimony including the corpus relating to popular religious credences.' She stressed the fact that 'while there was evidence of considerable fluidity in the Sastras [early scriptures] themselves, additional latitude was provided in as much as the mores which prevailed at any given time and place in Hindu society did not necessarily have to conform to the usages enjoined by the Sastras'. The belief that Hindus did not cross the sea if they wished to remain within their caste framework possibly began as a random comment, which through frequent quotation became a 'fact' known to all European students of Indian customs.

The most exciting discovery in recent years has been the seafarer's manual in the form of a *pothi* (little book) written in the Cutchi dialect of Gujarat.

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5. Phillips, ibid, 1885, Vol. 20, p. 215.

6. Alexander Burnes, *Travels into Bokhara, also narrative of A Voyage on the Indus . . . 1831, 1832 and 1833, 1834*, London: John Murray, Vol. III, p. 7.

7. B. N. Goswamy and A. L. Dallapiccola, *A Place Apart, Painting in Kutch 1720–1820*, 1983, Delhi: Oxford University Press.

8. B. Arunachalam, 'The Haven-Finding Art in Indian Navigational Traditions and Cartography' in Satish Chandra (ed.) *The Indian Ocean, Explorations in History, Commerce and Politics*, 1987, New Delhi: Sage, p. 219.

9. Lotika Varadarajan, 'Indian Seafaring: The precept and reality of Kalivarjya' in *The Great Circle, Journal of the Australian Association for Maritime History*, 1983, Vol. 5, p. 8.

In its present form it was written in 1664 A.D. (the date is given on the last page of the manuscript: V.S. 1710, Fagun Sud 13, thirteenth day of the bright half of Phalgun, i.e. February), but is probably a copy from earlier times, as such manuscripts were recopied many times whenever they became too tattered for use. Discussing such charts Arunachalam wrote: 'These early nautical charts are certainly not comparable to the present day hydrographic charts, and probably did not carry the graticule of latitudes and longitudes. But they did possess the basic elements of a map, with measured distances, directions or bearings, and map symbolism to identify features and landmarks, but they were not to scale. Distances were perceived ones, while directions were based on field observations. Symbol stylisation was based on skyline profiles as observed from the sea and at a distance. They were in a sense topological, mental maps, not so much concerned with depicting in precise details topography and configuration, but meant to satisfy the basic objective of identifying landing points through distinct landmarks and bearings.'[10]

The manuscript from Cutch is not complete in its
80 present form, only five maps remain, not contiguous along the coast. It is likely that the missing pages would have supplied the gaps, and shown the extent of the coastline covered. This is the first such manual with maps to be found, and it is to be hoped that more will surface, so that a clearer picture of such navigation aids will emerge. Arunachalam has called these charts 'simple in style and highly utilitarian in perspective, with limited information base that is of direct relevance and use to men on board . . . crude attempts in an evolutionary phase of map-making, but all the same, maps.'[11] Certainly they predate the return of the Cutchi wanderer who went to Holland, and returned to teach his countrymen 'the art of navigation'.

10. Arunachalam, op. cit., p. 202. A pothi is a diminutive of *potha*, a manuscript book written on long separate leaves of paper or palmyra connected by a string through the middle. This pothi is in the form of a book of thick man-made paper, 21 x 29 cm in size, with stitching at the side.

11. Arunachalam, op. cit., p. 209.

VII. TOWN PLANS

There is no straightforward development of town plans that can be traced among the existing maps and plans made in an indigenous style in India. They vary in almost every respect, in size, in material, in symbolisation, in scale, and in the purpose for which it is presumed they were made. Any discussion therefore becomes difficult, since they form disparate groups which have no apparent link. All those illustrated here were probably drawn by Indians without any training in survey by the British or French, though many of them are from a period when measured surveys were already being made. Those that were drawn purely for religious reasons, usually as mementoes of visits to pilgrimage sites, have already been considered among the religious maps. Others were certainly used as a form of concentrating the mind on good thoughts, such as the plans around the Bhojanshala at Amber, but their depic- 92
tion was much more practical and their topography more correct, and they have been included in this section. In another sense, it is difficult to separate some of the town plans from sketches drawn for a strategic purpose, to illustrate fortifications or defence and attack possibilities. The Maratha fort plans are very similar to the simple sketches of towns which have been included here (though several cover wide topographical areas, it was thought better to keep the group together), and the map of Vijaydurg might have been placed here, instead of among the topographical maps. As expressed earlier in this introduction, there is much overlapping among the sections, and never more so than in the maps of towns.

83 One of the earliest examples is that of Bijapur in central India, even though it can only be stated that it was drawn after a certain date, but no date for its
84 completion can be hazarded. It is unusual in the fact
85 that later copies of it also exist, not identical, but obviously based on an original. Further study would probably reveal which of the three was made first.
89 In style a fourth map, of Udgir near the Madras border, seems to be similar. Another map of which two
82 copies have survived is of Thanjavur. This is a Maratha map, drawn at the time the Marathas were in control of that part of south India, but before the British destroyed the walls of the town. Other Maratha maps date possibly from the time of the Anglo-Maratha wars at the beginning of the 19th century. Again, study of the roads and buildings shown would establish a correct dating.

Maps were being drawn in Jaipur more frequently than any other place, at least it seems so from the large number that have survived. Again, they are not

dated, but some at least were probably drawn before the end of the 17th century. A large map of Surat 87
that was perhaps brought to Jaipur seems to have been typical of the type used by Muslim pilgrims. In a manuscript recording his pilgrimage to Mecca in 1676 A.D. Safi bin Vali al-Qazvini has drawn two maps. One is of Mecca and can be directly traced to 86
similar plans in Arabic manuscripts, for example, in a verse description of Mecca and Medina and the pilgrimage ceremonies by Mohyi Lari, that was copied in Mecca in 1574 A.D. The second map in Safi bin Vali's *Anis al-Haj* is of Surat and appears to be a 86
smaller version of the one at Jaipur. This is on cloth 87
and has been preserved in the palace at Jaipur. When it came there or who brought it has not been recorded. If it were studied, as R. N. Mehta has studied the large map of Gujarat and Rajasthan at Baroda,[1] it should not be difficult to date it according to the buildings that have been shown. Since Surat was usually the first port reached by Europeans coming to north India and the Mughal empire, its topography has been quite well recorded since the beginning of the 17th century.

A group of maps at Amber, the capital of the Kachhwaha Rajputs until Sawai Jai Singh built the new town of Jaipur in 1728, can be more easily dated. Once Jai Singh moved down to Jaipur, the palace of Amber went into decline, so it is not likely that such elaborate maps would have been painted after the raja had moved out. He had succeeded to the gadi in 1700, at the age of 13 years, and was immediately dispatched by the Mughal emperor Aurangzeb to be viceroy of the province of Malwa. In 1722 he was appointed subahdar of Agra. Then for six years, between 1723 and 1729, he was at home, first in Amber, and then in his new capital of Jaipur. So it would seem that the paintings in the Bhojanshala (dining- 92
hall) at Amber must have been completed by the middle of the third decade of the 18th century. It is a small room, hardly eight feet by twelve feet and eight feet high, and when the doors to the small outer verandah are closed no light enters. Hence the colours have remained bright and clear. The maps, around all the walls from a height of three feet to the ceiling, are of holy places in India, a subject conducive to good digestion if they are contemplated during the meal. In the much larger dining-hall in the upper part of the palace there is a frieze of town views around the room, but these are not maps in the real sense; they are similar to the views still to be seen in Jain temples, and in other palaces in Rajasthan, for example in Udaipur and Kota.

There are also maps of the town of Amber itself, of which the earliest will be considered among the 105
Jaipur construction maps. Another very large one 91
which, like the Bhojanshala maps, must have been made before Amber was abandoned, is in the National Museum at New Delhi. It is on cloth, and could unfortunately not be photographed in full. After it has been restored it may be fully displayed. It is in the now recognisably typical style of Jaipur, with purple rounded hills, buildings shown on either side of the road, and to be viewed from all sides, some buildings in elevation, others in plan, liberally dotted with trees, and with every street and building named. Most importantly it has been dated by Pandit Bahura of Jaipur to 1711 A.D. This enables the similar maps in the Jaipur collection to be confirmed in their early 18th century dating.

100 A strange map in the Jaipur collection is of the town of Jodhpur. The depiction is stylised, more so than in other maps. There is a wealth of textual matter, and it should not be difficult to date from internal evidence. It is interesting to conjecture how it came to be in the Jaipur palace, and who made it. The writing is in the Jodhpuri dialect, yet no other map made in Jodhpur is known. Some elements, such as the twisted outer wall, are also seen in Turkish maps, especially in Nasuh Matrakci's map of Istanbul.[2] It also shows similarities with the religious town views of India.

There are several large-scale very detailed town plans, which probably date from the second half of
103 the 18th century. One is of Hyderabad, and has apparently been dated to 1772, from internal evidence.
90 Another is of Nasik in Maharashtra, perhaps of the
88 same period. Jammu can also be seen in a detailed map, undated and with no evidence of other similar town plans from the area.

It is not so surprising to find large scale maps of Delhi. In the Jaipur collection are two detailed plans, of the forts at Agra and Delhi. Both are on graph
94 paper, with the grid laid down by hand. That of Delhi
95 has been tentatively dated to the 1750s, both from the style and from the occupant of one of the houses.
97 Three other maps of Delhi are also from the same period. Two are street plans, naming the residents on either side of the road, while the third is of the exterior of the fort. The buildings along the roads are shown in elevation as though seen from the centre of the road, a device used also in non-survey maps

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1. R. N. Mehta, 'An old map of Gujarat' in S. K. Bhowmik (ed.), *Reflections on Indian Art and Culture*, 1984, Vadodera: Dept of Museums, pp. 165–69.

2. A beautiful facsimile edition of Nasuh's maps and text has been produced in Turkey by Prof. Huseyin G. Yurdaydin with the title, *Nasuhu's-Silahi (Matrakci): Beyan-i Menazil-i sefer-i Irakeyn-i Sultan Suleyman Han*, 1976, Ankara: Turk Tarih Kurumu Basimevi. The map of Istanbul is on p. 86. I am grateful Dr Usha Luther for showing me her copy of the facsimile.

of Europe at that time and a little earlier. Whether the style was copied in India, or developed independently as the best way to show the details, or even whether the maps were drawn by or to order of a European are all questions requiring study. Since another example of the fort exterior exists, and with the signature of the painter, it is possible that all were drawn by him. Another large map of Delhi is in the 96
India Office Library, and though frequently published it has not been satisfactorily dated. Yet another, which looks very plain, and therefore early, names the house of the vizir in 1760, so must also 93
be from the same period.

Maps are sometimes found on miniature paintings. That of Ujjain has already been described 24
among the religious maps. Another shows a port, 99
with boats drawn up on the beach, and buildings and streets of the town. The main subject of the painting is a meeting between a Mughal prince and some Parsi merchants, but there is so much topographical detail that it seems likely that the town was drawn from personal knowledge. A miniature was published in *Marg* that shows a harbour and town, but the caption merely states: Miniature depicting a sea route.[3] There is no reference as to where the map is kept, or even what the town is.

In another issue of *Marg* Foy Nissen described the loss of valuable topographical scenes that had been painted on the walls of the Shri Godi Parshvanath Shvetambar Jain Derasar at Pydhonie in Bombay.[4] These murals dated from the late 18th or early 19th century, and showed typical scenes of Jain pilgrimage. From the illustrated view of Palitana they are reminiscent of the murals at Amber and more map-like than most of the Jain paintings.

From the 19th century come a number of views of towns and gardens that are as much like maps as some of those that have been illustrated here. They have not been included, chiefly on account of the period in which they were made. By the 19th century there were so many British centres in India — indeed they were already ruling most of the subcontinent, either directly or through residents and agents at the courts of local rulers — that imitation of European styles is obvious in almost all types of Indian art. In Rajasthan and north-west India in particular large town views were being painted, either on walls or on cloth and paper. One such depicts the visit of Maharao Ram Singh to Delhi in 1842. It has been published several times, and is most detailed in the social life it records. But as a map, taking into account the date at which it was drawn, it is not very satisfactory. As Stuart Cary Welch remarked, the artist (unknown) 'has compacted , bent, or twisted most of the buildings, courtyards, gardens, and streets to fit his upright rectangle.'[5] A similar painted hanging, at the National Museum, New Delhi, shows the Maharao's return to Kota after the visit to Delhi. There are similar views on the walls of the palace at Kota, many of which show places connected with the life of Krishna, which were painted about 1830. More views of the same pattern are to be found in various manuscripts and museums, of gardens, Akbar's tomb at Sikandra, the fort at Lahore, the Golden Temple at Amritsar, gardens and forts in Punjab. At the Tambekar Wada at Baroda, 'a typical Maratha mansion, residence of Bhau Tambekar (Vitthal Khanderao) diwan of Baroda 1849–1854', as the signboard informs us, there are scenes to illustrate the *Ramayana* and *Mahabharata*, but as models it has been suggested that the artist used actual temples in the town around him. Like so many of these views, they are part plan and part elevation, but do not really fall into the category of maps.

3. *Marg*, Vol. 30, No. 3, on unnumbered pages towards the end of the volume, advertising the Great Eastern Shipping Company Limited.

4. *Marg*, Vol. 36, No. 3, p. 91–93.

5. Stuart Cary Welch, *India, Art and Culture 1300–1900*, 1985, New York: Metropolitan Museum of Art, p. 432.

VIII. CONSTRUCTION MAPS AND PLANS

It is difficult to find an explanation for the large number of maps that were made in Jaipur towards the end of the 17th century and in the first half of the 18th. They are unique among Indian maps, and had neither precursors nor any influence in other parts of India. Of the more than thirty maps that have been preserved in the palace there, some were obviously brought from other places, since the style is so different. But the fact that they were brought, and preserved, shows the interest there was in geographical maps, and the value that was placed on them. It might be presumed that it was the interest of Sawai Jai Singh (ruled 1699–1743) in astronomy and foreign sciences that led to this explosion of cartographic

practice, but one map certainly dates from before his birth. Nor is there any evidence of European cartographers at the Jaipur court. The Italian, Manucci, was with Mirza Raja Jai Singh (ruled 1621–67) in his campaigns on behalf of the Mughal emperor but, as mentioned earlier, there is no record that he was skilled as a draughtsman.

There are scanty mentions of European artists in India in the 17th century, such as William Gates, 'a rare Artist', serving under Aurangzeb in 1660[1] and Cornelius Heda of Prague at the court of Ibrahim Adil Shah II in 1605.[2] None of them are recorded as being cartographers, and even in Europe at the time few maps were being made from surveys, and it was a specialised calling whenever it *was* practised. The Jesuits who came in response to Sawai Jai Singh's request for information about astronomy did not arrive until after most of the maps had been made, so they can have had no hand in their preparation. They did, however, bring an atlas for the raja, the *Grosser Atlas* by Johann and Baptista Homann printed at Nuremberg in 1725, which is still in the palace library, and there was a request for a globe. It is presumed that 'it was from such sources that the necessary information was obtained for the construction of the curious old terrestrial globe in the Jaipur museum.'[3] If this globe, which I have not been able to see, was similar to the one at Varanasi, then it is not certain that it was manufactured in imitation of a European model. However, plans were being prepared on graph paper at Jaipur long before the Jesuits reached there and the inspiration for them must be sought elsewhere.

The earliest plan at Jaipur is probably that of the 105
palace of Amber, the capital before the construction of Jaipur. It is on a grid of 5 squares to 4 centimetres and the latest date given is in connection with repairs undertaken in 1681. Other additions or repairs to the buildings were noted for various dates 113
between 1649 and 1681 A.D. (Samvat 1706 to 1738), but it is thought that the map dates from 1681. Another map kept at Jaigarh, as is the one just men- 104
tioned, is of Jaigarh itself, but much more rudimentary than a map of the same fort that has been kept in the Jaipur palace. (The fort of Jaigarh is on the hill above Amber, and provided its defence from that side.) It must have been drawn early in the reign of Sawai Jai Singh (ruled 1699–1743), when Jaigarh was being constructed. It too is on graph paper, and shows more of the surrounding hillsides, and recommends sites for water tanks.

Jaipur was a planned town. Various theories have been put forward about the model which prompted it, which will not be entered into here.[4] Even if its planning was not obvious from the lay-out of the streets, it can be confirmed from the survival of maps in the form of progress reports on its construction. They do not conform in every detail to the town as it was finally constructed, so some of them must have been preliminary plans which were discarded. As with the later maps, it is likely that those which were actually used by the engineers were discarded when the work was completed, and it is only those which were not valued which have come down to us. Some of the progress details are so pertinent, however, that it is hard to think that they were of no use, and that the map was not carried back to the site after the consultation or report was done. If it had been, then it would not have been tossed to the back of a cupboard in the palace where the collection lay for so many years.

Apart from the very large-scale town plans, there are also maps of larger areas. One (undated, as they
109 all are) is called 'Tarah Sawai Sambhar Ajmer Pokran Pushkar tak', Map from Sawai (probably meaning Sawai Jai Singh's new town of Jaipur) to Sambhar, Ajmer, Pokran, and Pushkar. The portion showing Jaipur has unfortunately been destroyed, and possibly other parts at the sides of the map are also missing. The Sambhar lake is prominently shown, and beyond it the large detour of the road to avoid mountainous country, the same route followed later by the railway. The road is shown as a thin red line, and there is a note added: 'This red line denotes the road on which the maker of the map travelled, and he drew the map from this spot.' So one can imagine how the maps were constructed, from observation along the route, and with no modern instruments to measure distances or heights. At some places the measurements must have been made either by pacing or more probably by cords. On the same map a pasted slip of paper reads that towards the east from the village of Jogner a canal twenty-two yards wide will be constructed. On another map very detailed measurements for the proposed construction of a canal have been given. It was planned to bring drinking water to Jaipur, perhaps in the 1730s, but was never actually built. The map is in the form of a long narrow strip, about 18 m in length and 23 cm wide. It shows how the level of the water is to be kept constant by pillars every hundred yards, marked yellow

1. R. C. Temple (ed. and tr.), 'The travels of Richard Bell and John Campbell' in *Indian Antiquary (Bombay)*, 1906, p. 170.
2. Mark Zebrowsky, *Deccani Painting*, 1983, London: Sotheby, p. 95.
3. A. ff. Garrett, *The Jaipur Observatory and its Builder*, 1902, Allahabad, p. 20.
4. The building and design of Jaipur are discussed by Sten Ake Nilsson in *Magasin Tessin* (Lund), 1987, No. 1, and by Ashim Kumar Roy in *History of the Jaipur City*, 1978, New Delhi: Manohar, and in various other studies.

in the map, with every tenth pillar shown in red. Beside each is the height required to raise the canal, varying from four to eight (unit not stated), and also the amount of land that could be irrigated by water from the canal. Hills and villages beside the canal are also noted. This is an instance of a map that not only showed the topography of the land as it was but the projected changes that might be made in the landscape. The canal is shown as a straight line, though on the ground it could never have been built that way. But the references to the neighbouring villages would have been sufficient for the contractor to plot the route it would take, and if necessary to begin the work in several places simultaneously.

An interesting group of three maps shows the same valley, first as it was, then how it would be with 115
a dam built, and then a large-scale plan of the pro- 116
posed dam and lake so formed. This also is a rejected 117
plan, as the houses that would have been demolished 108
by the lake are still standing today. It is likely that several plans would have been submitted for approval, various people would have made their notations on them, and the map would have then been redrawn. Possibly all the plans were rejected, or other matters took precedence; for whatever reason the project was abandoned, and the maps were discarded, but not destroyed. It is regrettable that so little written matter has survived, and so few common people gave time to writing, that we are missing all the details about everyday life that have been maintained in records of other countries.

A very beautiful map, and one of the few that has 114
been studied, and so dated, is of Agra. Chandramani Singh has concluded that the inclusion of the haveli (household) of Rai Shivadasa in this map confirms its execution at the time of Sawai Jai Singh.[5] This nobleman was not otherwise famous, nor was his house, but he was a close associate of the raja, and may even have been responsible for the public works or some other office which included the making of maps. At first sight this map purports to be simply a map of the town, but closer inspection shows that it too is a construction map. A new city wall had been planned, and that has been shown in yellow. The existing wall is red. The map is strangely uneven in its appearance. It is not so much that it seems to be unfinished, but that emphasis has been given to certain areas, while others have been merely sketched in to show that they were built up. It is possible that there were already maps of the town in the public works department, and this one was adapted from an earlier one to show relevant features for the specific project on hand. If this is so, then perhaps other maps may be found.

Some maps can be dated to the period after the death of Sawai Jai Singh. Sawai Madho Singh ascended to the gadi after the death of his brother in 1751, and ruled until 1768. He founded the town of Sawai Madhopur, named after himself, in 1763. The
121 map of Sawai Madhopur shows some buildings, such as the old fort, which were already there, but also gives details of work recently completed, and the amount that remains to be done. A second map of
110 the same period is of Madhovilas just outside Jaipur. Again there are buildings already in place, and others that are proposed. This map may date even from the following reign, when perhaps further construction was planned, since it mentions a garden belonging to Kawas Kora Ram who was Chief Minister to Sawai Pratap Singh who ruled 1778–1803. It proves that the making of these construction maps was not confined to a single period, but continued until European survey methods were adopted in the middle of the 19th century. The very detailed map of Jaipur and the road to Sanganer is probably from this period too, since it shows the *chhatris* (memorials) of three rajas, who must be Jai Singh, Madho Singh and Prithvi Singh (the elder brother of Pratap Singh, ruled 1768–78).

It is possible that similar construction plans were made in other states in Rajasthan, but they have either not survived, or are still lying unrecognised in some forgotten corner. G. H. R. Tillotson discussed the many pictures of palaces from this area, and came to the conclusion that they 'rarely depict specific buildings — usually they have some generalised architectural background — but they give us a clear idea of how the palaces were furnished and used.'[6] Sometimes specific places have not been recognised. While looking through thousands of card index photographs J. E. Schwartzberg noticed an interesting one with a sinuous river winding around a town, and took a copy. When he showed it around it was recognised as Ujjain with its famous temples, and belonged to the type of religious map carried home by pilgrims. Till then it was thought to be an imaginary picture, as so many of them were.

Tillotson also discussed the use such plans may have had: 'The few drawings which have survived are almost exclusively plans rather than elevations, and this suggests that the method was based on planning, that the plan was fixed first, and the elevations were worked out as building was in progress. . . While investigating the survivors of the guild system early in

5. Chandramani Singh, 'Early 18th-century painted city maps on cloth' in R. Skelton et al (eds), *Facets of Indian Art*, 1986, London: Victoria and Albert Museum, p. 192.

6. G. H. R. Tillotson, *The Rajput Palaces; the Development of an Architectural Style, 1450–1750*, 1987, New Haven and London: Yale University Press, p. 6.

this century, Gordon Sanderson remarked, "They don't believe in plans." In the light of surviving drawings this remark cannot be applied to the earlier period, but it does suggest a method based on improvisation from learned formulae.'

As more evidence comes to light, it may be that many of the earlier opinions will have to be revised. It is only a few years since it was thought that there was no indigenous map-making in India at all, except for the cosmographies. The maps that follow owe little if anything to foreign influence.

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THE MAPS

The maps illustrated in this book have been numbered consecutively from 1 to 122. The first seven have already appeared in the beginning of the Introduction. Several types of numbers and letters have been used to show details of larger maps, maps from one atlas, or groups of maps bound together. The style of numbering is as follows:

Two or more versions of a map have been given the same number, with a secondary number following a point; for example, No. 82, the two maps of Thanjavur are too similar to be given separate numbers; they are therefore numbered 82.1 and 82.2. The three maps of Bijapur, however, Nos 83, 84 and 85, each show some new input, and have been given separate numbers.

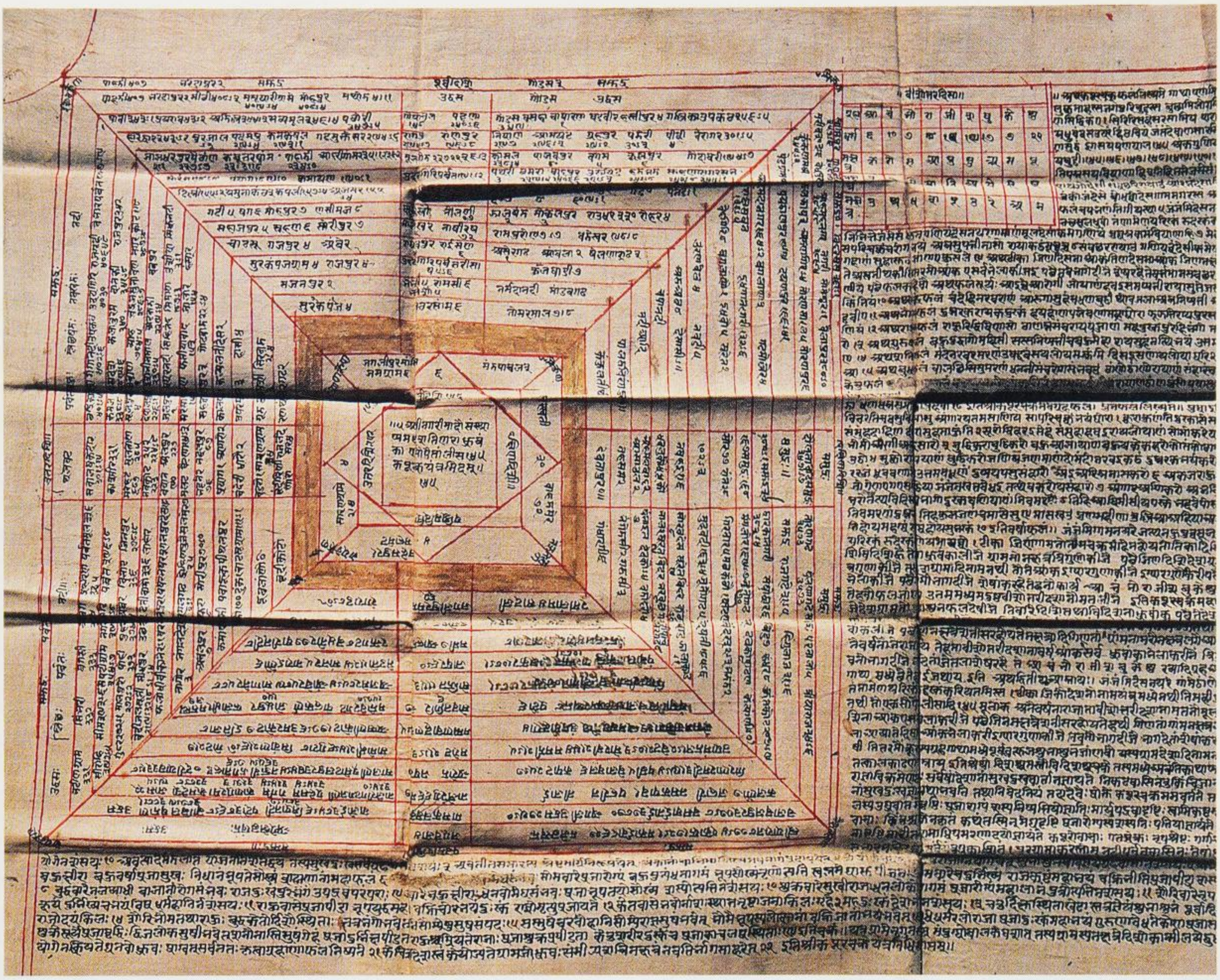
Two or more maps from one manuscript, book or atlas have also been given the same number, with a secondary number following a point; for example, Nos. 51.1 to 51.17 are maps from a history of Kashmir. A plan on p. 126 identifies the various folios. The same pattern is followed for maps in one building, for example, No. 92, the maps around the walls of the Bhojanshala at Amber.

The long scroll maps, Nos 43 and 44, have been divided over several pages into vertical strips. The parts of No. 43, the road map from Kandahar to Delhi, have been given lower case letters of the alphabet at the base of each strip, so that the translation can be related to the relevant part of the map. Since No. 44, the map of the Ali Mardan canal, has not been fully translated, interesting features referred to in the text have been indicated by numbers in the centre margins. Maps from Sadiq Isfahani's atlas and those of the *Chahar Gulshan* have been numbered according to the folios of the originals.

Details of maps have been given the number of the map and lettered a, b, etc. Where no illustration of the full map was available, as for No. 25, the large map of Benaras, but several details have been given, they have also been given lower case letters.

The only map that is not of Indian provenance, the 16th century map of Mecca, has not been given a number, but included as part of No. 86, for which it is shown in comparison, and given an upper case letter A. Similarly the English translation of a world map by Ouseley is numbered 36A.

Within the boxes which accompany each map are specifications of the maps, as far as they are known. In most cases the title of the map does not appear on the face of the map, and it has then been placed in square brackets. The size is the width first, followed by the height, as they have been reproduced here. In most cases the maps can be turned ninety degrees, and still be the 'right' way up. The language and script have been given as a general guideline, without any finer definition of Persian, Devnagri, etc. It has usually depended upon the name given by the person assisting with the translation. These translations are of varying qualities, particularly for some of the Persian maps; it seems that people can read different sounds from the same letters, especially when the script is not clear or the map is damaged. The maps have not been closely examined for the types of paper on which they have been painted or drawn, so only the general categories of paper or cloth have been noted. The bibliography entries are necessarily incomplete. Those which were noted during the research have been given, even though they may sometimes contain merely a brief reference to the map under discussion, or a partial illustration with no textual reference. There must surely be further references to this large body of material, and many more maps, or references to them, are likely to be found.

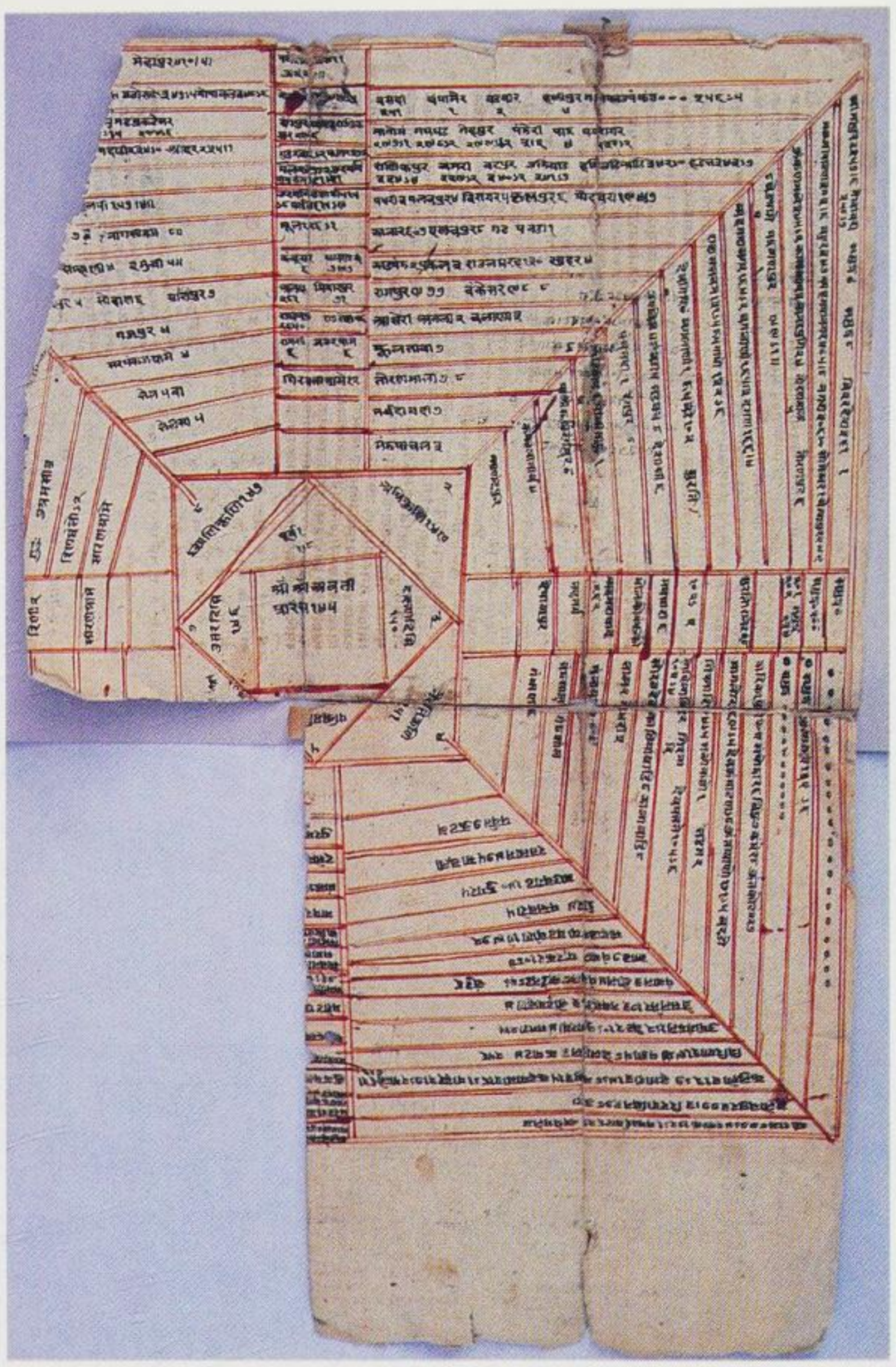


8

Title	[Chart based on Avanti (Ujjain)]
Size	c.40 x 30 cm
Language	Hindi
Script	Devnagri
Material	Cloth
Location	Bikaner: Rajasthan Oriental Research Institute
Cat. no.	Acc. 22377
Bibliography	—

8

No satisfactory explanation for charts of this type has been found. This example on cloth, with text beside it, has not been fully translated, and no date has so far been found for it. It has been suggested that the figure '145' beneath the passage mentioning Avanti (Ujjain) in the centre may refer to the latitude or longitude, but no explanation has been given for the figures which occur after most of the place-names.



9

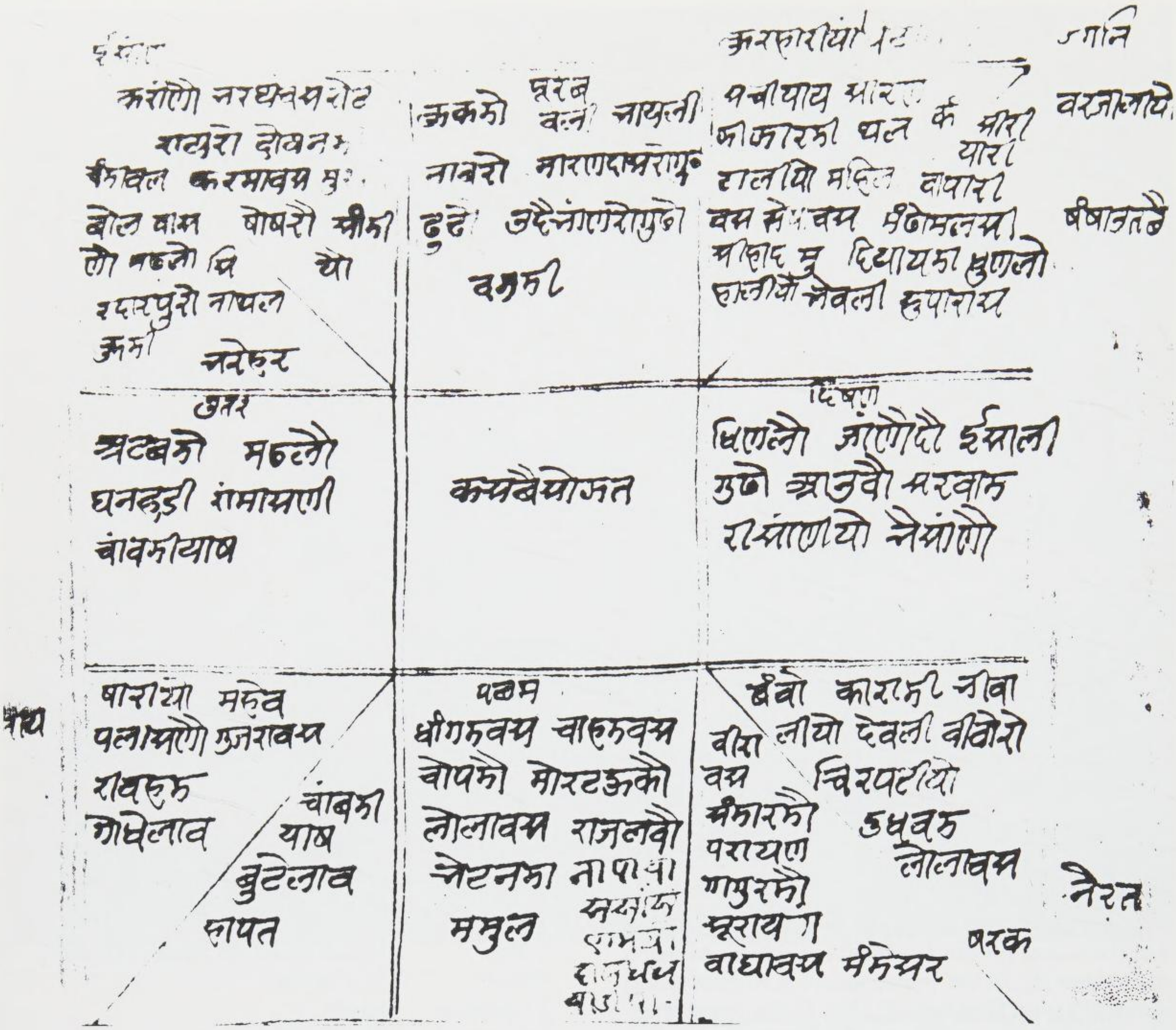
The missing portion of this chart has not been found, but the names on this fragment are similar to charts at Bikaner [8]. In the centre square is written 'Sri sri Avanti/Praram [Beginning] 145'. In the inner triangles, in clockwise order starting above the square, are 'Poorv [East]/148', '3/Dakshandesi [South]/150', '5/Paschimadesi [West]/152', '7/Uttardesi [North] / 146'. The corner triangles read: '2/Agrikuni [South-east] 149', '4/Neritikond [South-west]/151', the next triangle is missing, but must have read '6/Vyabya-kond [North-west]/153', '8/Ishanikuni [North-east]/ 147'.

As an example of the places named, those in the central strip to the right of the square, i.e. to the south, starting at the centre are: Dipalpur / Niha-tarm /Ahmedabad 262 / Bholakoboondko / Navsari 6 / 102S nu /blank/ Surati 1 Raner 28 /blank/ 201 Sa-mudra [sea] 202 234 / Samudra 0200 / Samudra 0.

From the style of the script, it is possible that this chart dates from the mid-17th century.

9

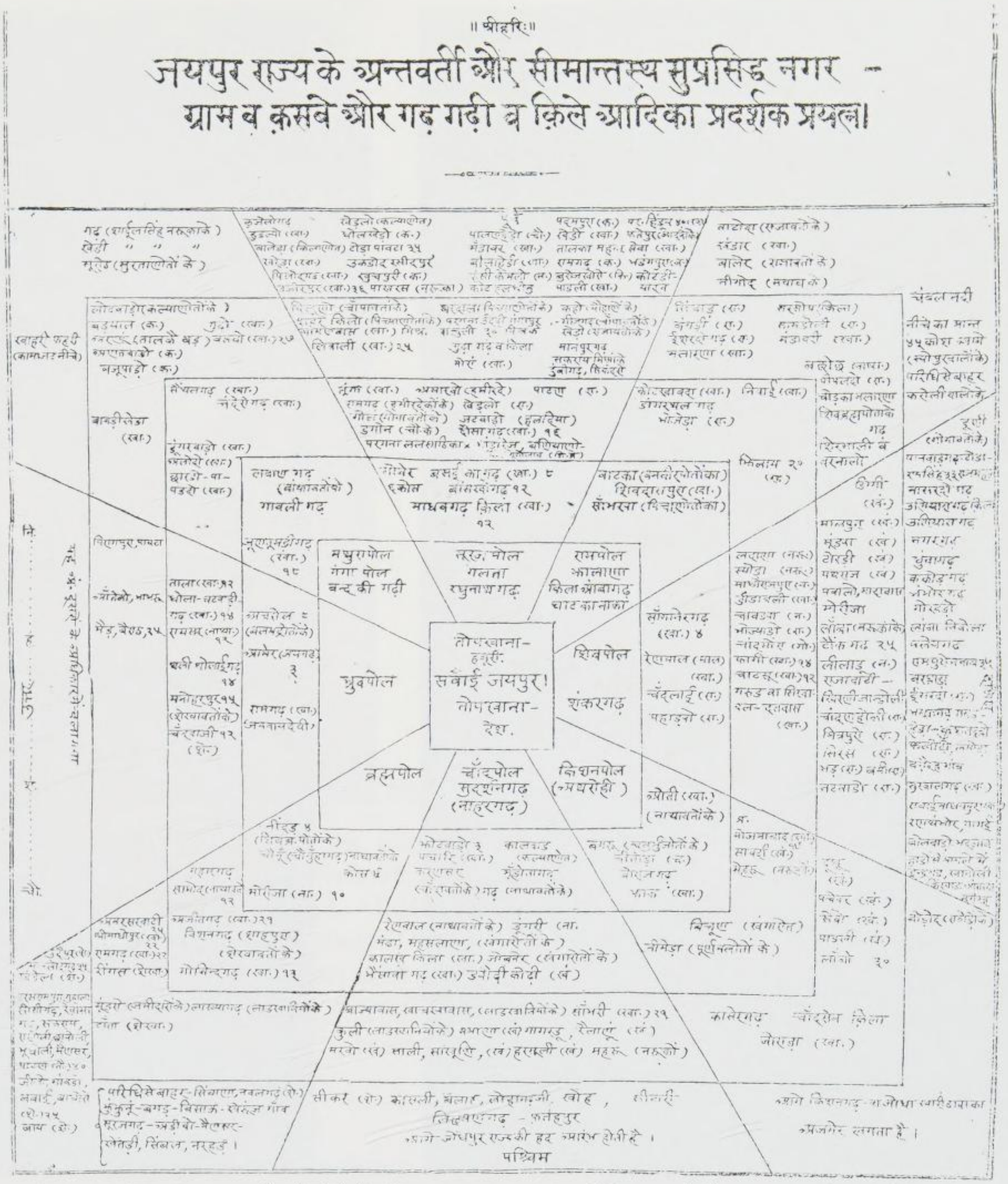
Title	[Chart based on Avanti (Ujjain)]
Size	32 x 41 cm
Language	Hindi
Script	Devnagri
Material	Paper
Location	Jaipur: Acharya Ramcharan SharmaVyakul
Cat. no.	—
Bibliography	—



10	
Title	[Chart based on Sojat, Marwar State]
Size	19 x 16.5 cm
Language	Rajasthani
Script	Devnagri
Material	Paper
Location	Jodhpur: Rajasthan Shodh Sansthan
Cat. no.	231
Bibliography	—

10
This small chart belongs in a manuscript of historical tales called 'Aihasik Bateir' by Sundarsi. His brother, Munhta Nainsi, was better known, as he wrote a gazetteer of Marwar State called 'Marwar ra parganan ri Vigat'. Sundarsi's manuscript is dated Samvat 1703 (1656 A.D.).

In the plan the four main compass directions are named, with east at the top. The four corners are each divided in two, for example, the lower right corner is named *Mandasar* – west-south-west – at the bottom, and *Khark* – south-south-west – diagonally to the right above, giving an additional eight directions. The place-names in each of the twelve directions refer to villages in relation to Kasbe Sojat which is in the centre. The term 'Kasbe' was frequently added to any place with religious significance. Sojat was known as the centre of the nine main forts of Jodhpur State, or Marwar as it was known then. Some of the villages can still be found on a modern survey map, but others have disappeared, though possibly still known locally.

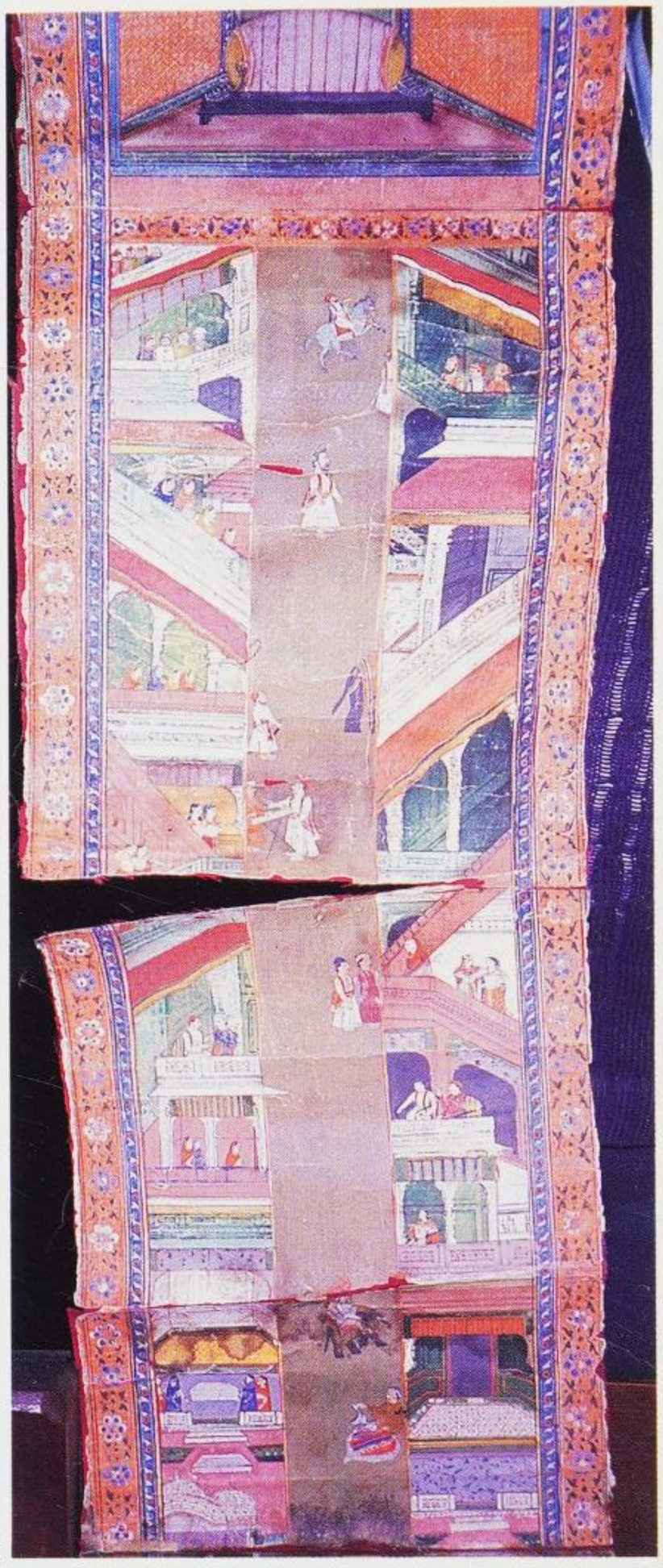


(नोट):—उपरोक्त नक़शा लगभग सवासौ वर्ष पूर्व निर्मित किया गया था। अतः संभव है कि इस अवधि में कुछ नगर ग्रामादि व गढ़ किले आदि का रूपान्तर या स्थानान्तर (स्थानसे अन्यत्र) होगया हो। जो कुछ हो यह यंत्र दर्शनीय अवश्य है।

11

There were possibly many such charts with varying towns placed at the centre, but very few have been traced so far. This one based on Jaipur is unusual in that it was published, and as late as 1941. There is no record of exactly when it was made, or for what purpose. Since it gives the distance in *cos* beside each name, and the ownership of each *jagir* (assignment of land, or the revenue from it), it might have been made for revenue purposes, but in an outdated style. In the centre is Jaipur with its eight gates named. Eight directions are given, and east is at the top, with all writing to be read from one direction.

11	
Title	[Chart based on Jaipur]
Size	30 x 30 cm
Language	Dhundari
Script	Devnagri
Material	Paper
Location	Published in *Hitaishi*, 1941–42,
Cat. no.	—
Bibliography	—



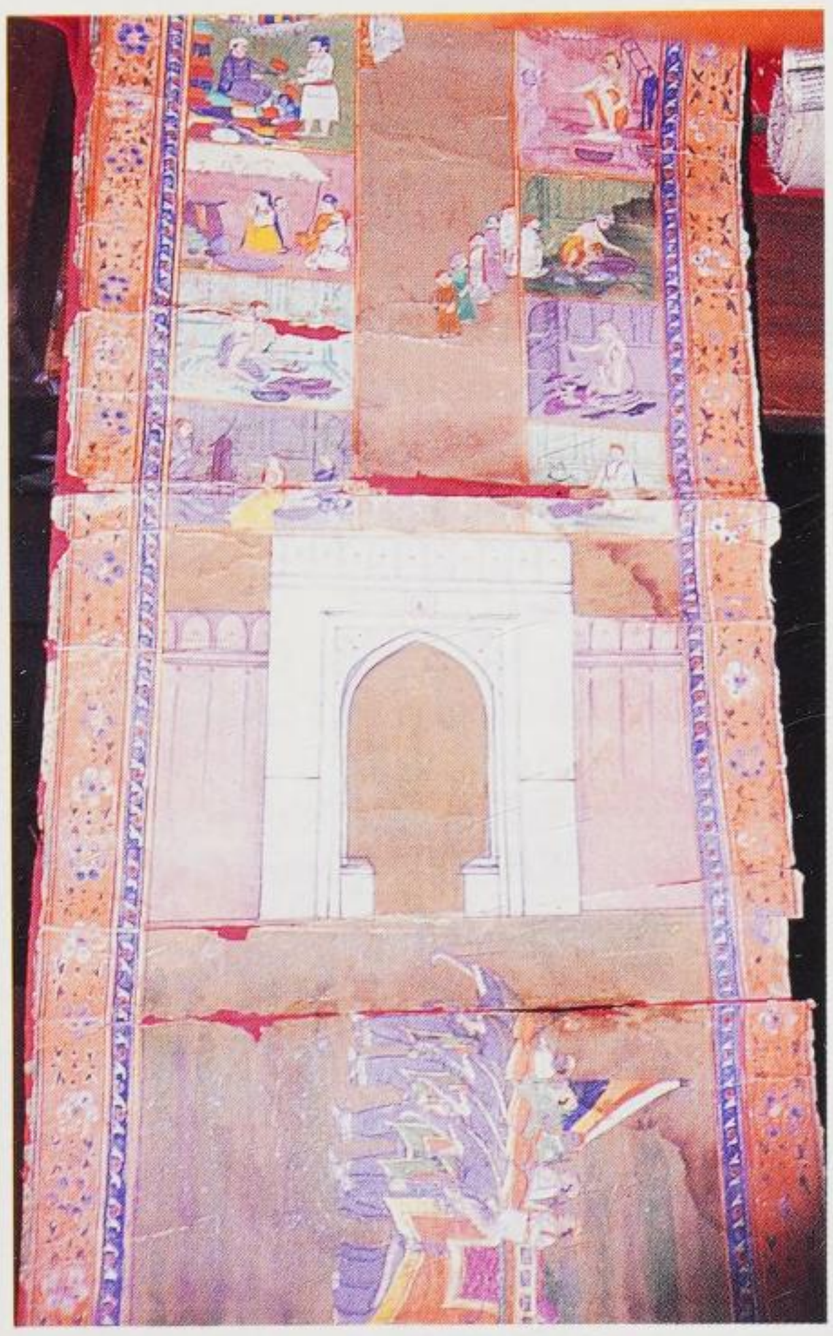
13a

12
Title [Vijnaptipatra from Udaipur]
Size about 23 cm wide
Language Hindi
Script Devnagri
Material Paper
Location Bikaner: Abhaya Jain Granth Bhandar
Cat. no. —
Bibliography —

13
Title [Vijnapatipatra from Jaiselmer]
Size 23 cm wide and about 12 m long
Language Sanskrit and Gujarati
Script Devnagri
Material Paper
Location Baroda: Oriental Institute, M.S. University of Baroda
Cat. no. 7572
Bibliography —

12
Vijnaptipatras were invitations extended to honoured Jain pontiffs to spend the monsoon period in a particular town, thereby blessing it with their presence. Some scrolls depicted the towns which would be passed on the journey, others gave only the host town in great detail. The style is folk-art, and would be understood without the need of written text.

This scroll was sent from Udaipur in Rajasthan, and is dated Samvat 1887 (1840 A.D.). The small portion shown here depicts some of the shops that the

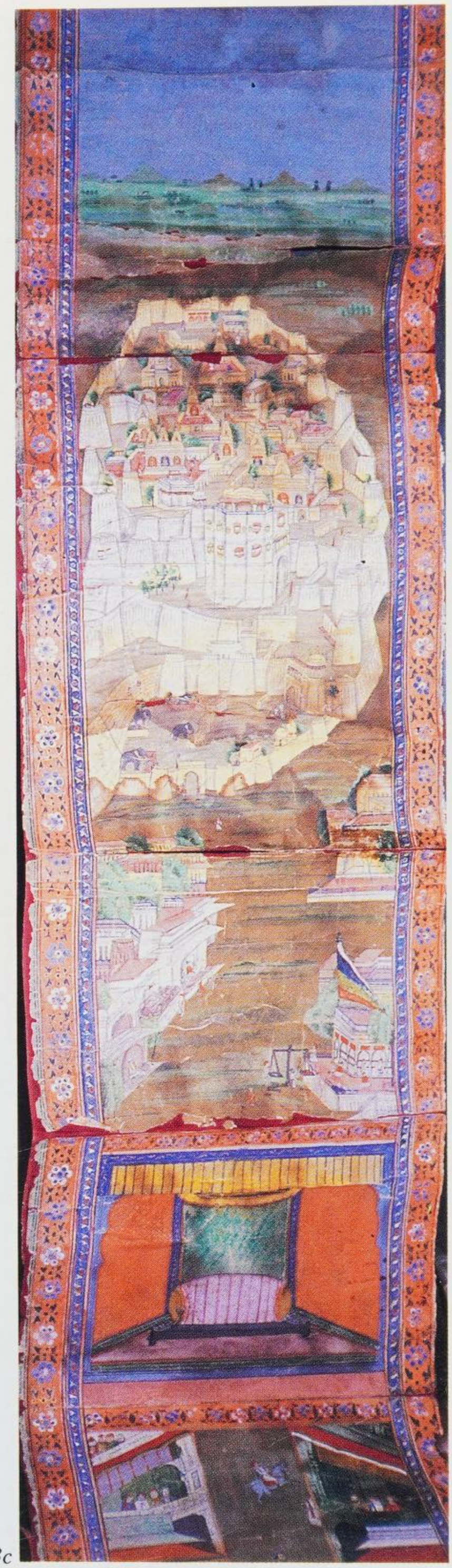


13b

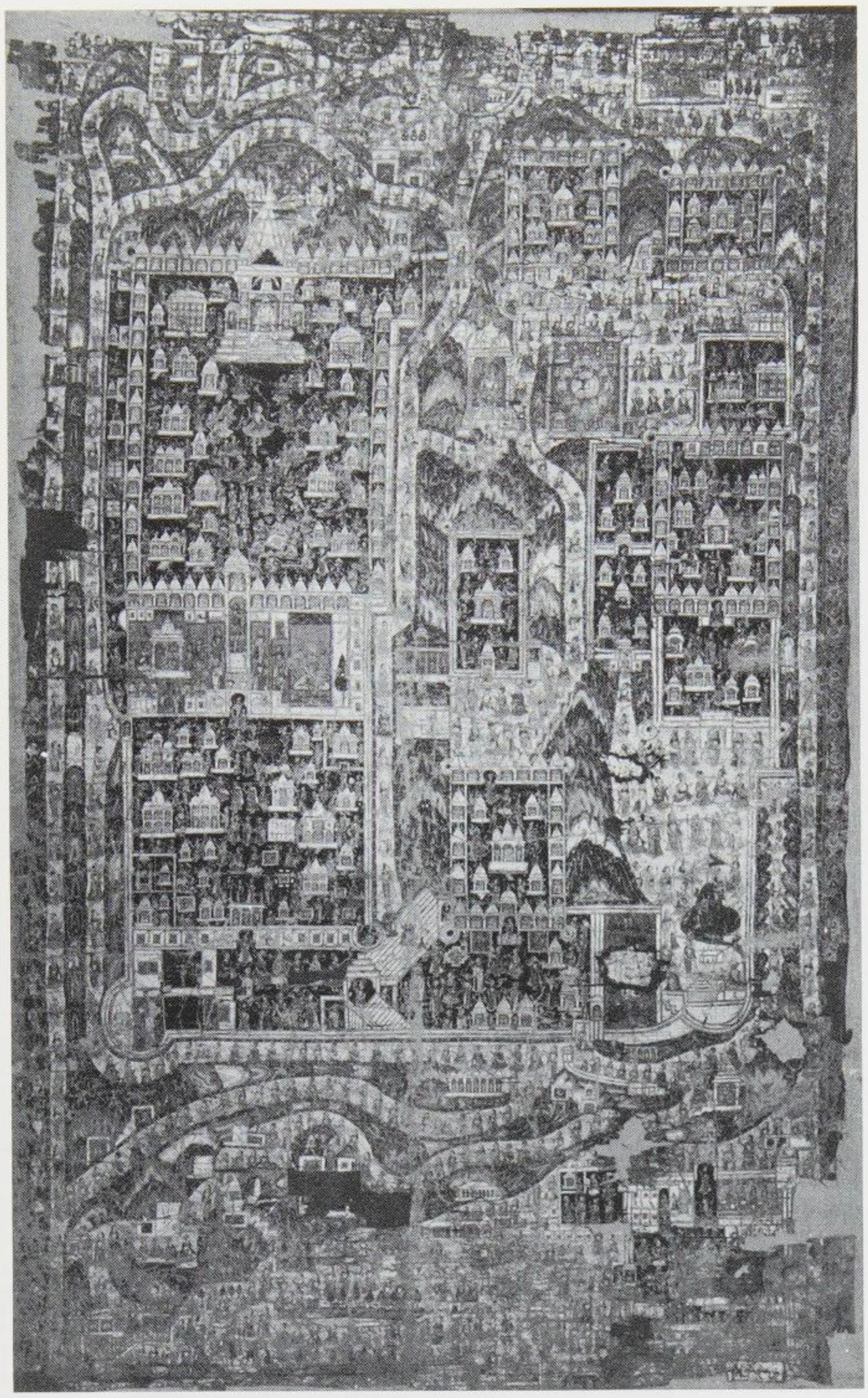
Jain monk would pass as he enters the town, such as those of the sweet-seller and the iron-merchant, and at the top right is a temple beside the road. All along the route ladies are shown in welcoming poses. There is no sense of direction, nor of scale, but such pictures would have given a very clear idea of what lay alongside the route.

13

This invitation was sent by monks in Jaiselmer, but there is no mention of the recipient. The text is in Sanskrit, but the names of the monks are in Gujarati language and script. The date is 1859 A.D. The painting is more stylised than the previous example, with diagonal divisions on either side, and elegantly dressed citizens on the road. The great gate of the town is shown with a troop of elephants waiting to escort the guest inside. Within the wall the shops of the bazar can be seen. Further along the road the guest would arrive at the imposing palace of Jaiselmer, built of local sandstone on high cliffs. The houses of the rich merchants of Jaiselmer, the *havelis*, can still be seen today, with their elaborate carved facades, intricate maze of small rooms inside, and beautiful balconies and window frames. Though there is no attempt at orientation or scale, the palace is unmistakably that of Jaiselmer, and possibly other places depicted along the route were drawn from life, not imagination.



13c



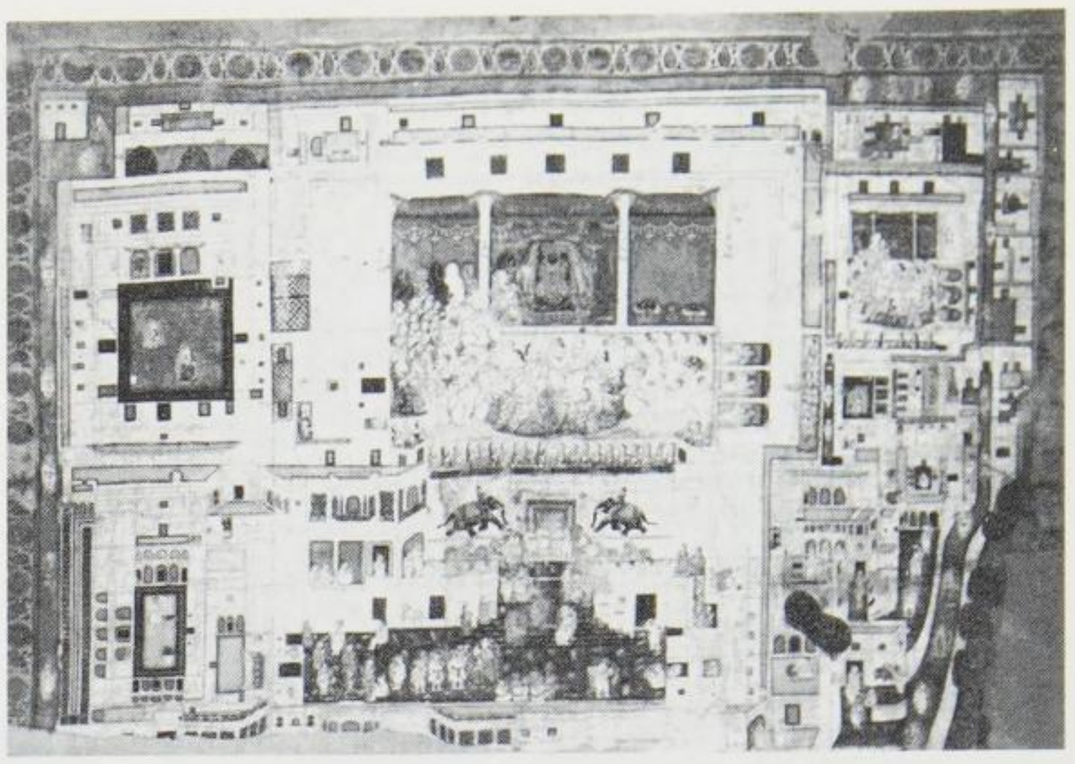
14
Title [Shatrunjaya pata]
Size 180 x 271 cm
Language —
Script —
Material Cloth
Colours White, red, orange, pink, flesh, brown, yellow, green, blue, grey, black, silver and gold
Location Ahmedabad: Calico Museum of Textiles
Cat. no. Acc. 1043
Bibliography Talwar and Kalyan Krishna, *Pigment Paintings on Cloth*, p. 89

15
Title [Khankroli pata]
Size 179 x 121 cm
Language Hindi
Script Devnagri
Material Cloth
Location Ahmedabad: Calico Museum of Textiles
Cat. no. P 300
Bibliography —

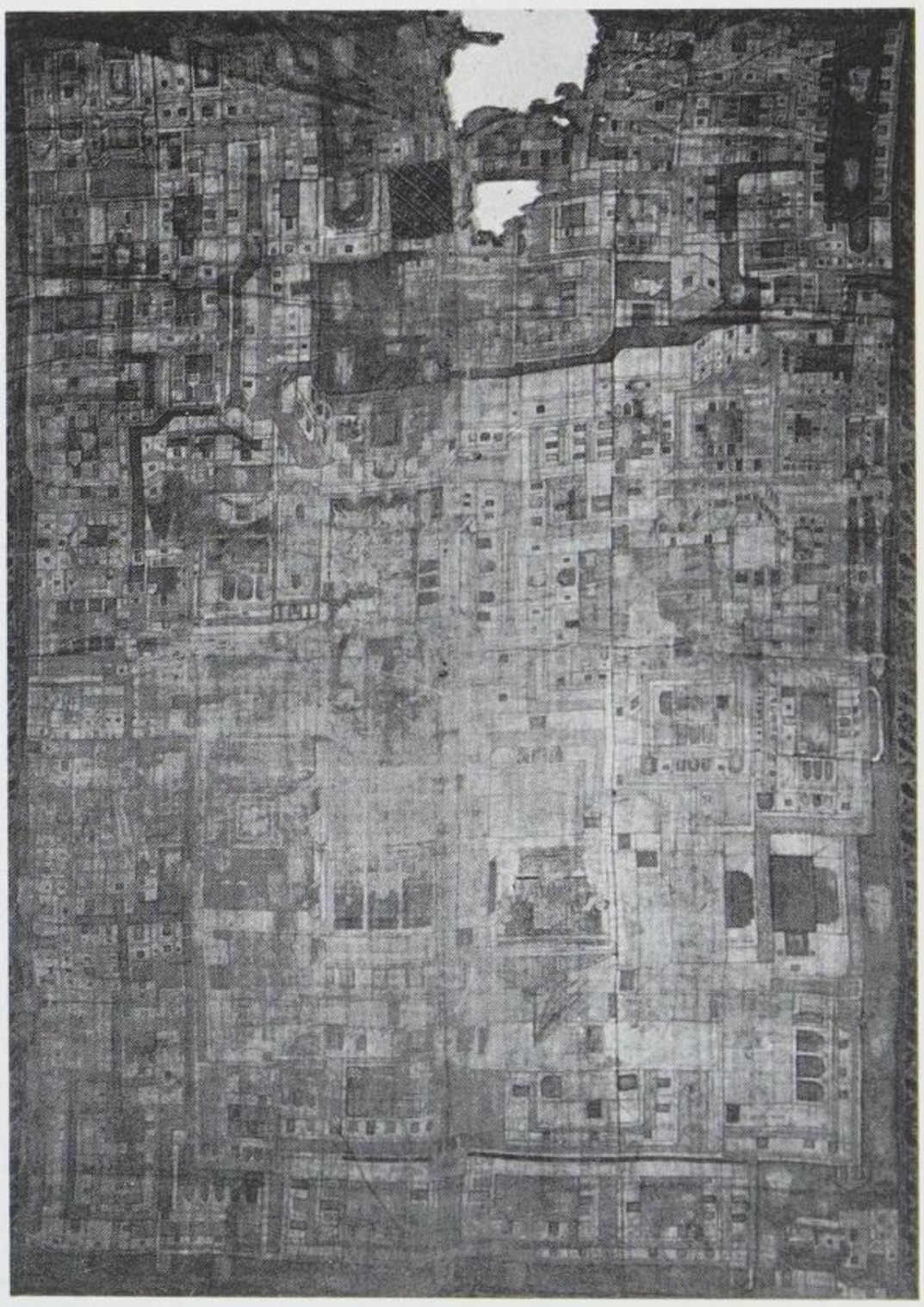
16
Title [Annakuta Pichhavai at Nathdwara]
Size 119 x 169 cm
Language Rajasthani
Script Devnagri
Material Cloth
Colours Black, red, orange, brown, violet, green, white, gold and silver
Location Ahmedabad: Calico Museum of Textiles
Cat. no. Acc. 1561
Bibliography Talwar and Kalyan Krishna, *Pigment Paintings on Cloth*, pp. 36 and 43

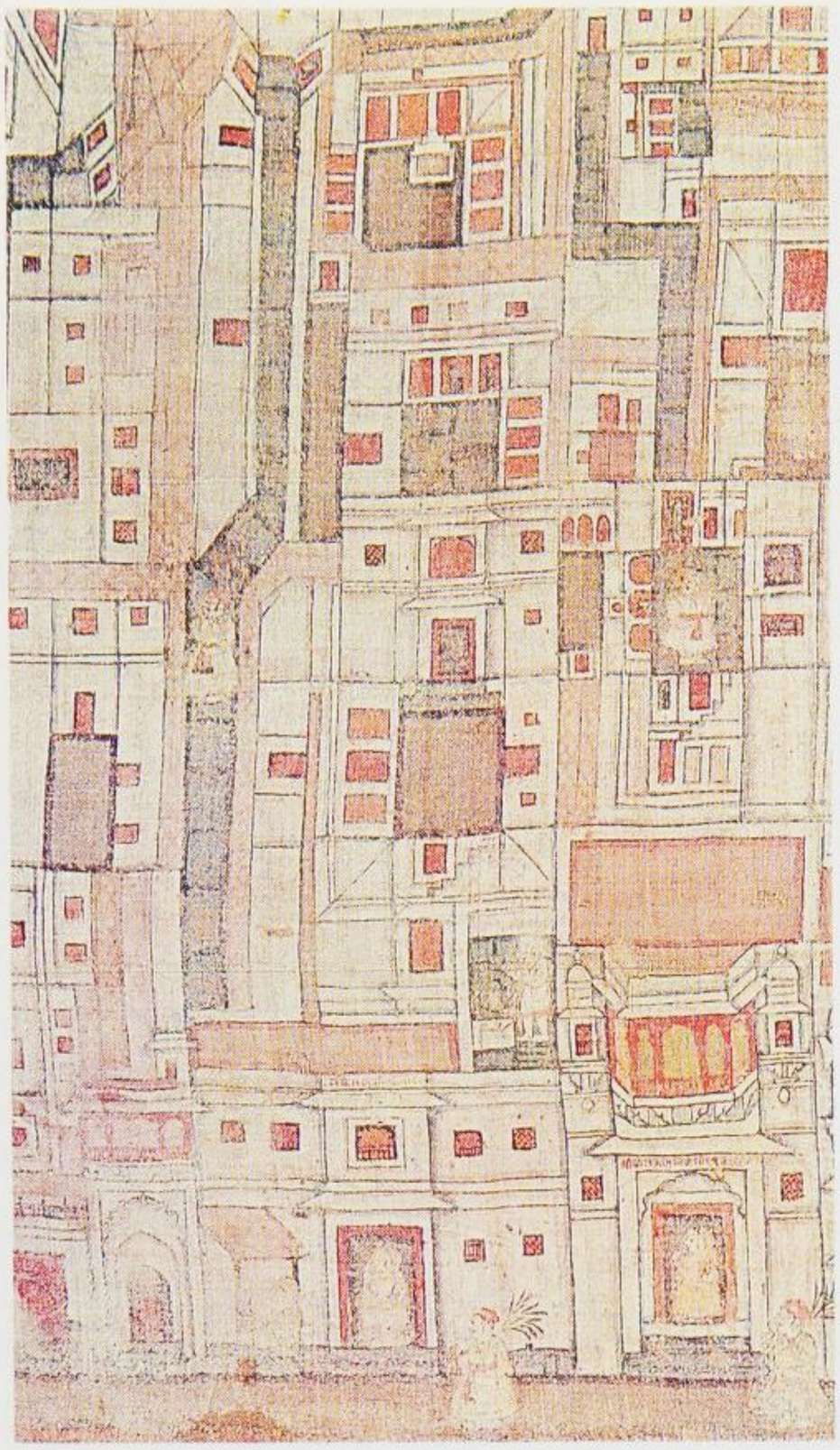
14
The temples of Shatrunjaya in Gujarat form one of the most holy Jain sites in India. They cover the hill above the town of Palitana, and there are many different types of picture to depict the way both up the hill and around the various shrines. The pilgrim would set out from Palitana and after some distance begin the climb up the hill. The wall encircling the hill can be clearly seen, as well as the many temples within it. Such a picture would not only serve as a memento of the pilgrimage, but also as a guide during the visit to the temples. Though there is no sense of scale, the buildings are placed in the order in which they would be approached, and it would not be difficult to find the correct route. Its large size, however, indicates that it was meant as a wall hanging, and not to be carried around and used as a map might be. This example dates from the 18th century.

15
Khankroli is about eight miles north of Nathdwara in Rajasthan. In the Dwarakdhish temple here there is an idol of Krishna said to have been brought there by the descendants of Vallabhacharya in 1669. It is not as well known as the temple at Nathdwara but still attracts many pilgrims.



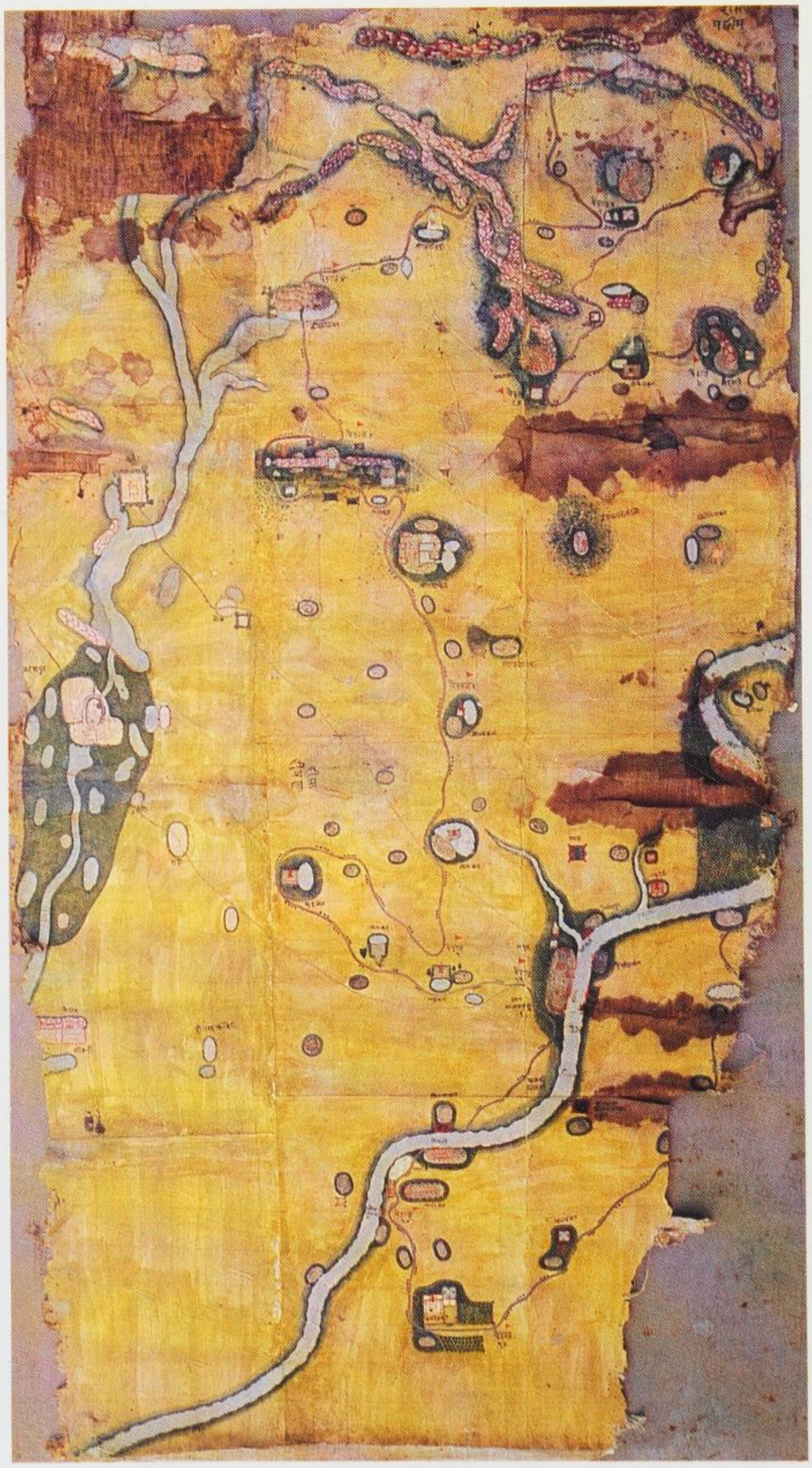
16
This is a plan of the Shri Nathji temple at Nathdwara. Though the colours have faded badly (it was probably painted as recently as the 20th century), it is possible to make out the different buildings, and the roads between them. The subject was a popular one, and there was a demand for such paintings as mementoes by the pilgrims. Known as *pichhavais* they were used as hangings behind the idol in the temple. The painted ones went to the lesser temples, while jewelled picchavais were used in the main temples. There is an intriguing combination of plan and elevation here, which can be seen more clearly in the coloured detail on the next page.





16a

17
Title Vraj ki Vana Yatra tarah
Size 79 x 141 cm
Language Braj Bhasa
Script Devnagri
Material Paper on cloth
Location Jaipur: City Palace Museum
Cat. no. 133
Bibliography —



17a

17b

17

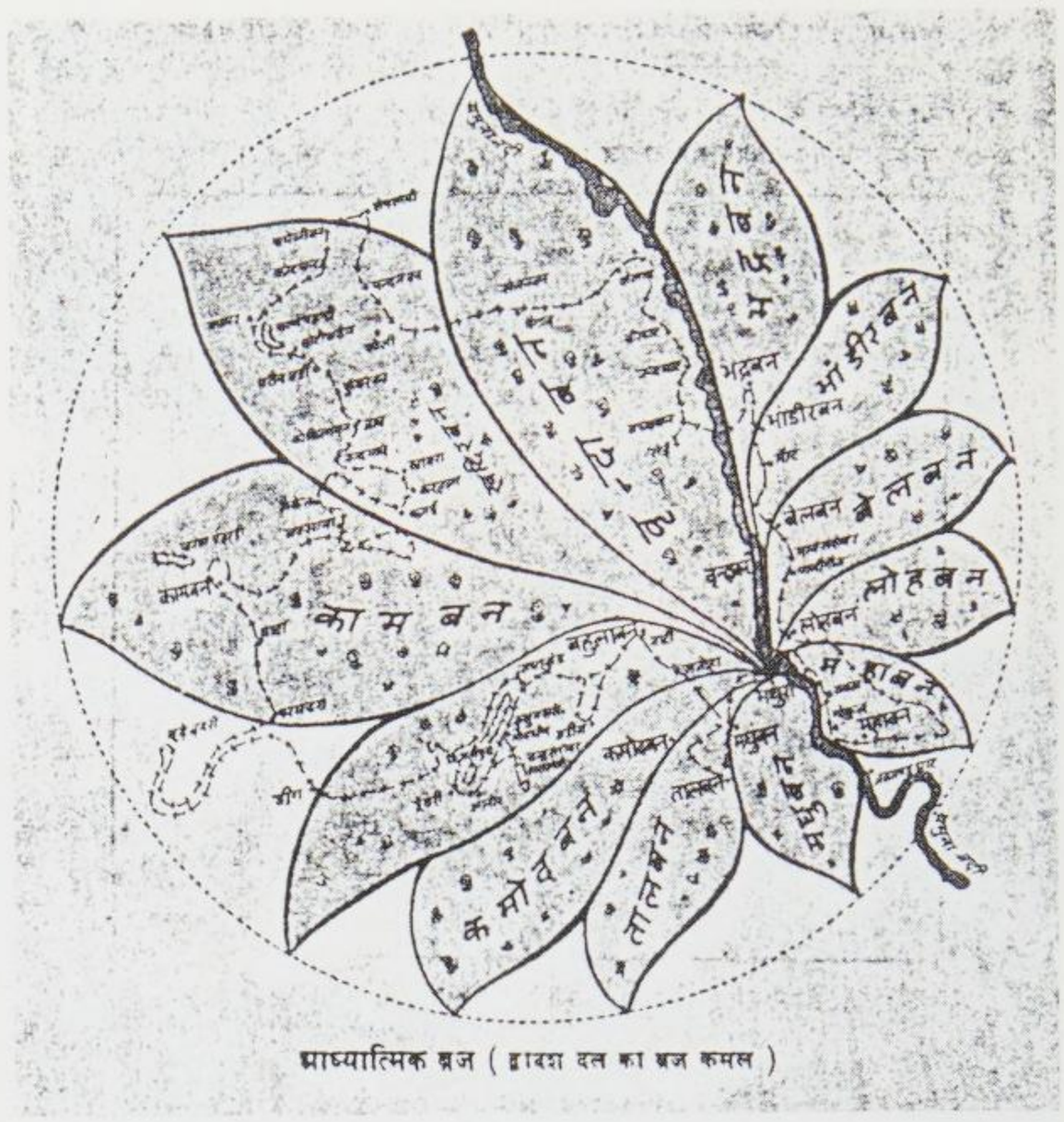
Vraj, the birthplace of Krishna, is one of the most holy places of pilgrimage for Hindus. The *Vraj Yatra* is a circular route of 84 cos passing all the spots sacred to the Krishna legend, where he played his pranks as a boy, and where he performed his feats of prowess. The devotees begin at Mathura, shown in this map as an oval beside the river Yamuna, and move in a clockwise direction around the city. The way passes through thirty-six groves, *vanas*, and takes several weeks to complete.

This map is from the Jaipur collection, but has not been closely studied to determine the date. Sawai Jai Singh (ruled 1699–1743) was governor of the province for some time, and built the township of Jaisinghpura there, but it is possible that this map is from a later date, perhaps the end of the 18th century. One complete fold of the map, about a third, is unfortunately missing. The style is not that of the Jaipur construction maps, and was probably local to the area, or the map was made specifically for Jaipur people, and in their style, but by an artist of the area.

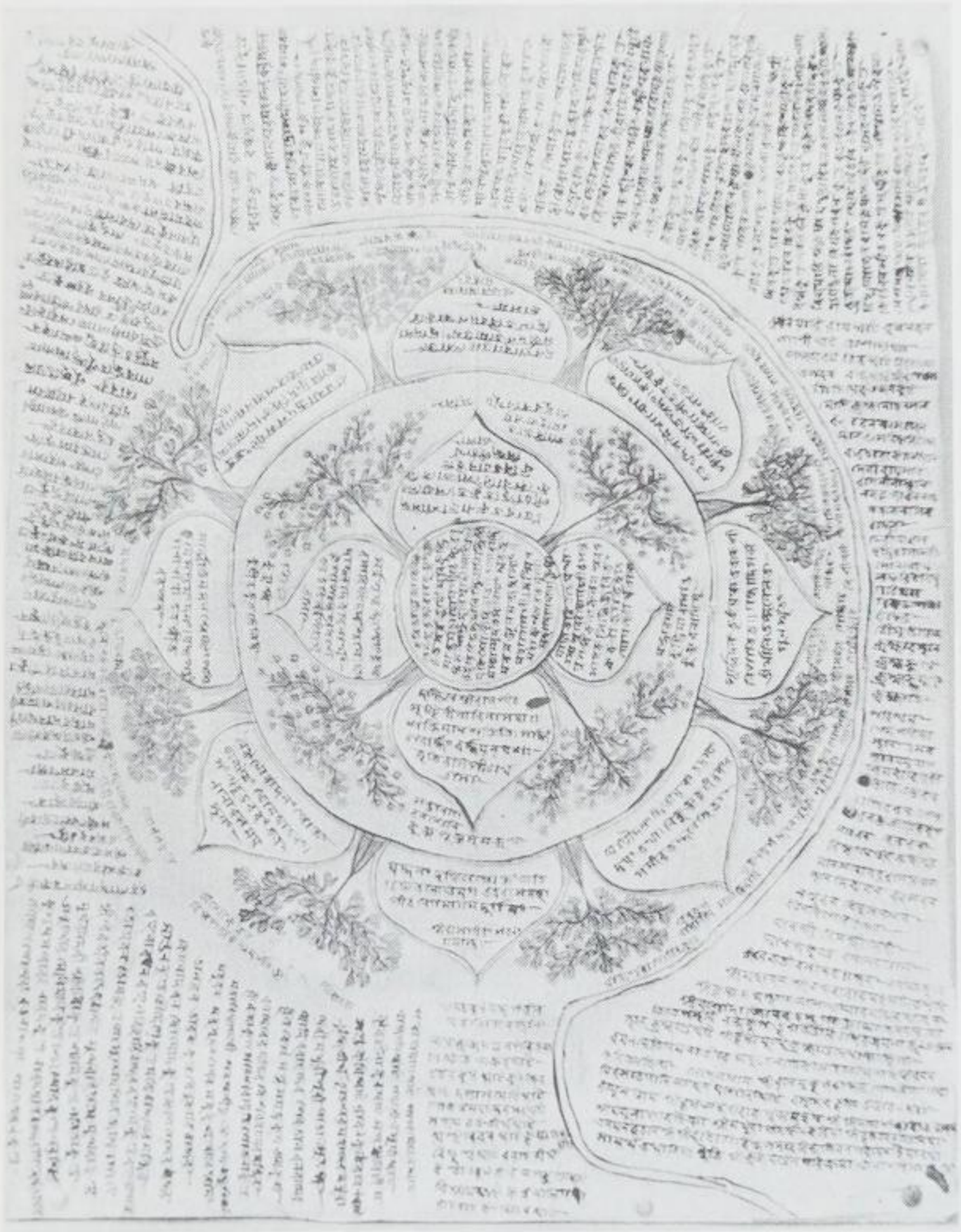
The loop made by the river to the north of Mathura and around the woods of Vrindaban can be seen at the right of the map. On the opposite side is Bharatpur with its *jheels* (swampy land), now the famous bird sanctuary. Above and to the right of it is a small square beside a pink circle, named Sonkh. This is the mound recently excavated to reveal treasures of the time when Mathura was allied to the Gandharva kingdom in north-west India. Immediately above Sonkh is Goverdhan, where Krishna raised the mountain to provide shelter from the storm. Above that is Digh lathavan, the centre of the Jat rulers in the mid-18th century. There are fifteen halting places marked on the map (though some of them are in the missing portion). Those numbered one and fifteen are at Mathura.

The two details show (a) the town of Mathura and its surrounding area, and (b) the style of the hills at the upper right corner of the map. The only direction given is at the top right corner, *paschimdeshi*, West.

18
Title [Vraj (Mathura)]
Size ?
Language Hindi
Script Devnagri
Material Paper
Location Published in P.Mital, *Braj ka Sanskitika Itihasa* from where this illustration is taken
Cat. no. —
Bibliography —

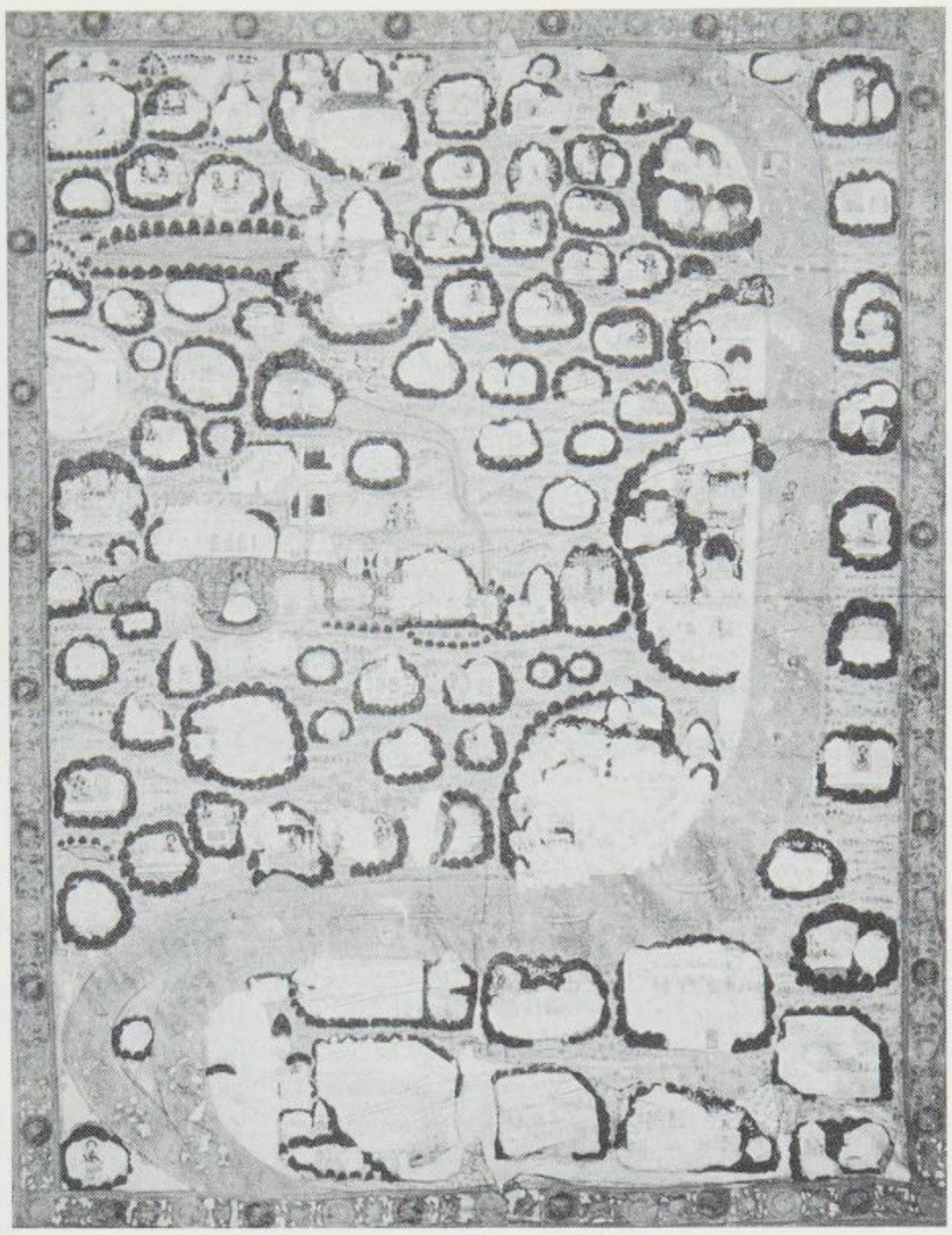


18
Maps of Vraj are found in many different styles and shapes. This one is in the shape of a twelve-petalled lotus. Paul Toomey (private communication to J. E. Schwartzberg) considers it a Tantric innovation, 'the Tantric influence being strong among the many Bengali Vaishnavas who settled Braj from the 16th century onward'.



19
This is a more elaborate map of Vraj in a twelve-petalled form. The text is written in Bengali script, which also suggests Bengali Vaishnava influence in these maps. Names of the *ghats* (places for holy bathing) are written in the petals along the river.

19
Title [Chaurassi Crosh Parikrama, a Sachitra Yog Pith]
Size 44 x 57 cm
Language Sanskrit and Bengali
Script Bengali
Material Paper
Colours Black, green, vermilion
Location Vrindaban: Vrindaban Shudh Sansthan
Cat. no. 4706
Bibliography —

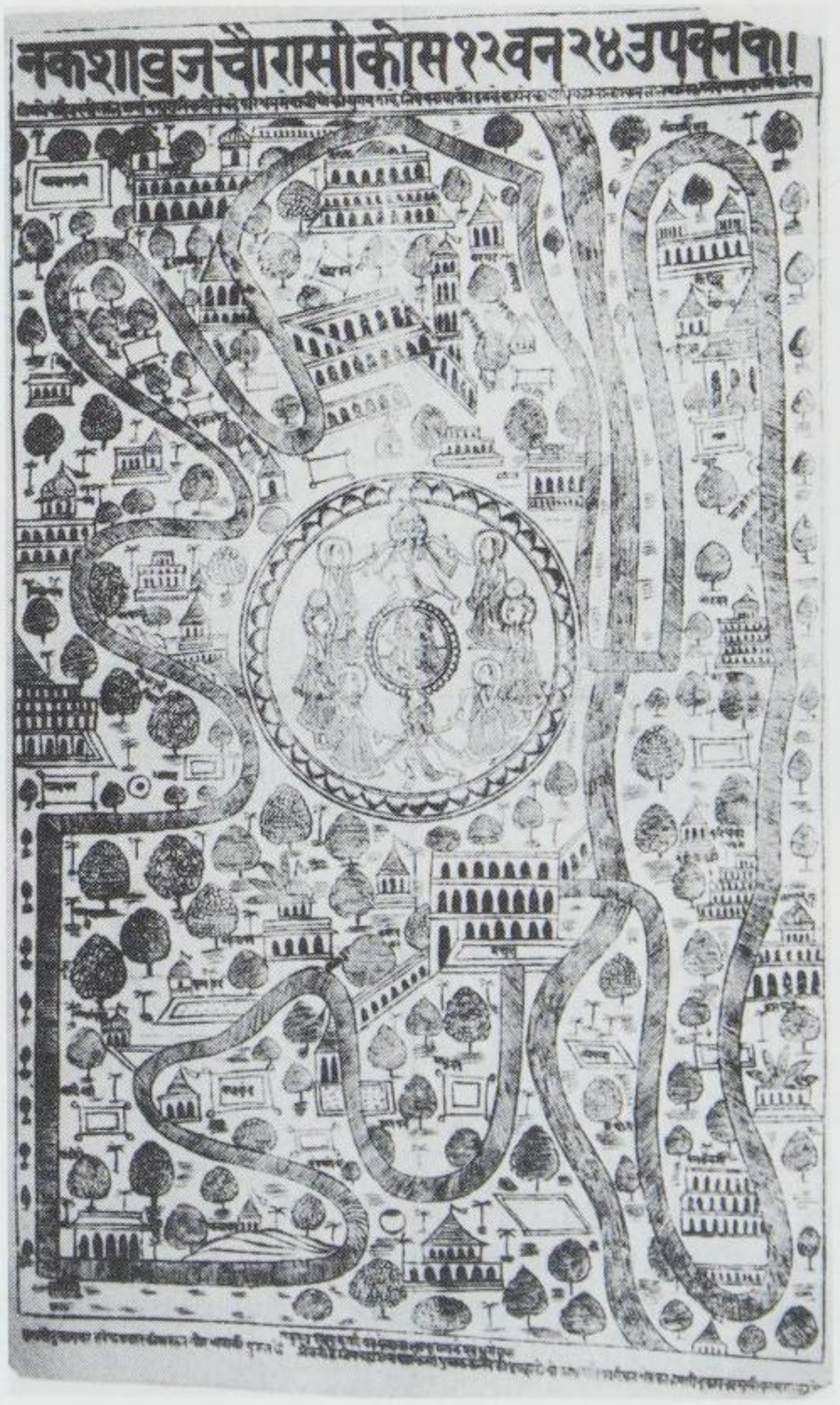


20
Title [Vraj Yatra Pichhavai]
Size 180 x 193 cm
Language Braj Bhasa
Script Devnagri
Material Cloth
Location Ahmedabad: Calico Museum of Textiles
Cat. no. Acc. 1330
Bibliography Talwar and Kalyan Krishna, *Indian Pigment Paintings on Cloth*, pp 26–27

20
This very beautiful painted cloth map of Vraj depicts in great detail all the places connected with the life of Krishna. It is not old, made perhaps in the late 19th or early 20th century, when western maps would have been familiar to many pilgrims, but the traditional style has been maintained. Each temple is located in approximately the correct place, and hills are shown in elevation. The intervening spaces have been filled with stylised trees and hillocks, with no regard for accuracy, but there is a wealth of detail connected with the story the map unfolds.

21
Modern maps of Vraj have less regard for geographical detail than many earlier ones. Cheap prints, often in gaudy colours, are easily obtainable as souvenirs, and have little artistic merit. Here the river can be seen flowing from north to south, without the well-known loop, while the path of the yatra twists and turns to encompass all the pilgrimage sites. Buildings are shown in elevation, but there has been no attempt to show each one as it really is. The trees, too, are used as space-fillers, not to depict the sacred groves.

21
Title Vraj Chaurassi Kos
Size 30 x 49 cm
Language Hindi
Script Devnagri
Material Printed on paper
Location Baroda: Collection Rini Dhumal
Cat. no. —
Bibliography —



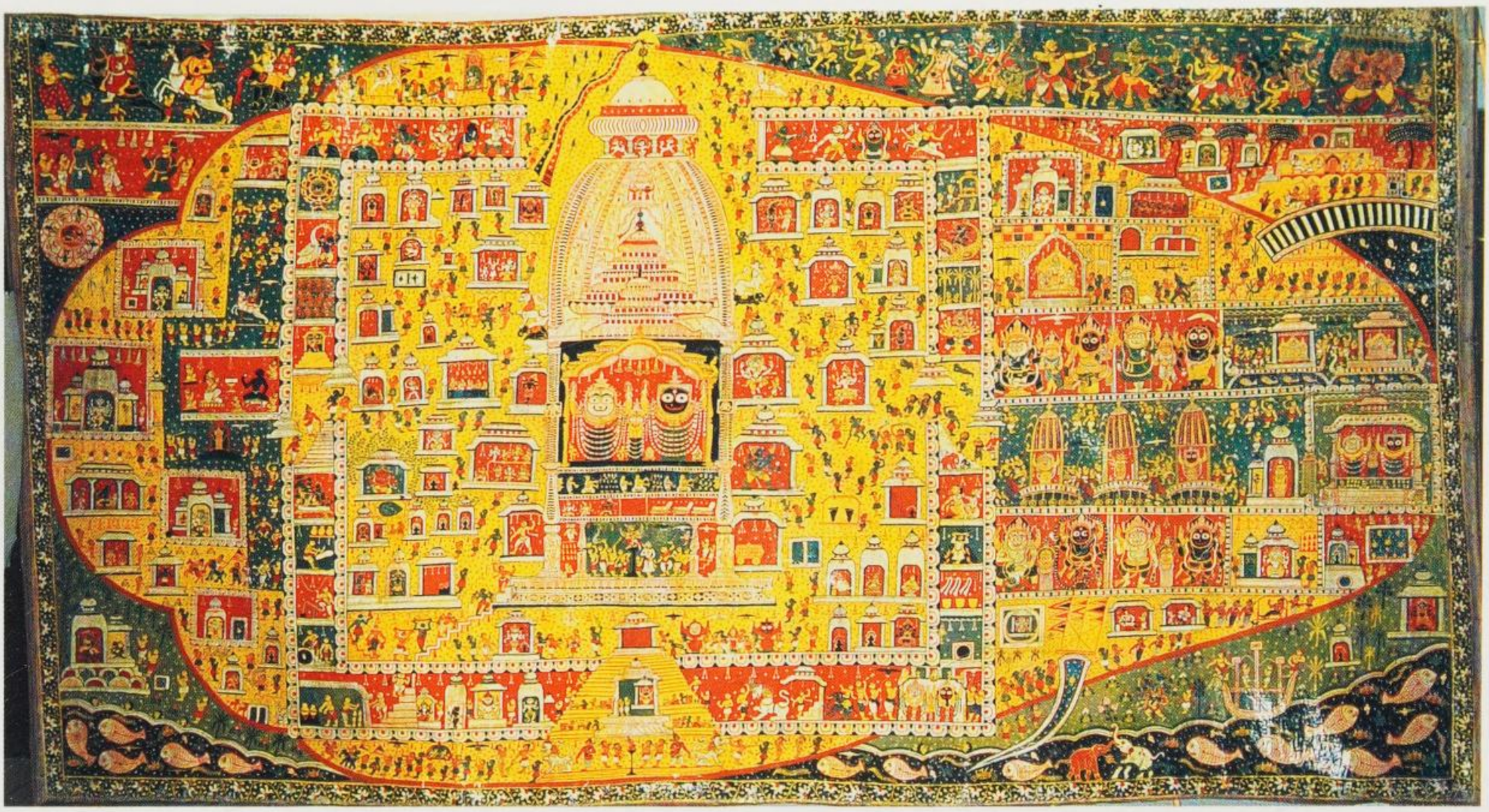
22

The route to Lake Manasarovar in the Himalayas was one of the most holy, undertaken only by the most religious. It was an arduous trek through difficult terrain. It is shown here in great detail, with the dark blue tributaries of the Ganges forming the skeleton, fleshed out by stylised mountains (each with one tree to symbolise their wooded nature), and the white path showing where the rivers are to be crossed. Towns and villages along the route are clearly marked, as well as those further away.

22	
Title	Map of Badrinarayan
Size	48 x 129 cm
Language	Hindi
Script	Devnagri
Material	Paper
Location	Jaipur: City Palace Museum
Cat. no.	132
Bibliography	Chandramani Singh in *Facets of Indian Art*, p.189

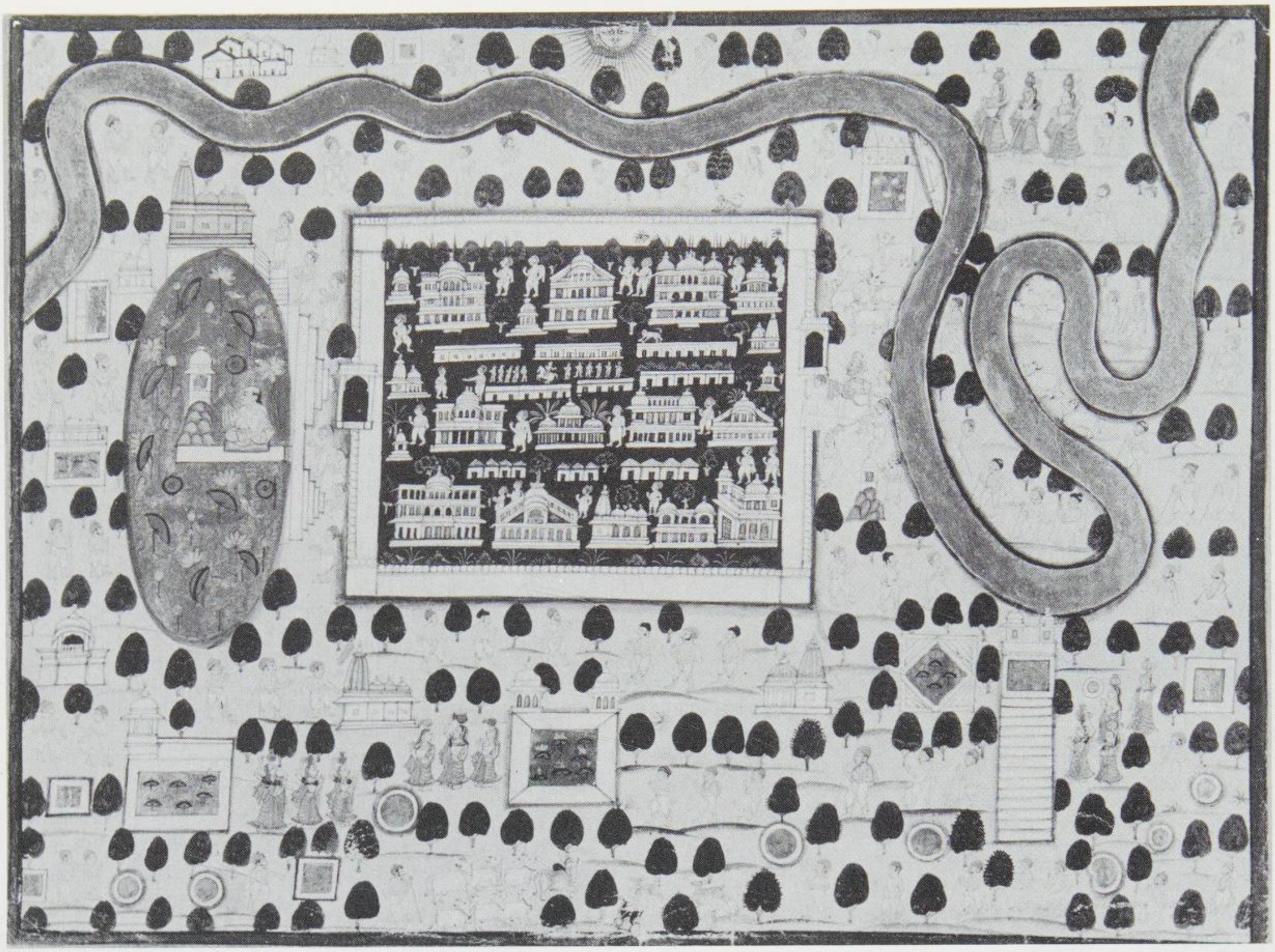
The path starts at the bottom of the map at Hardwar and passes through Rishikesh. Soon the Srinagar boundary is crossed (named on both sides of the river) and the climb begins. Four streams are to be forded before reaching the bridge over the Bhagirathi as it nears the confluence with the Alaknanda at Devaprayag. At the source of the Bhagirathi (on the left of the map, about two thirds up) is a small lake, and the holy temples at Gangotri. Down the left of the map is the Jumna, with its source at Jamnotri. The Alaknanda is named within a loop at the upper left corner, while beyond it is written 'Bhotantar', i.e. Bhot or Tibet. Beside that is the country of Chaparang. In the centre at the top an attempt has been made to correct the wrong siting of Manasarovar too far to the left, and it has been replaced to the right. One might speculate whether this was a mistake on the part of the artist, or whether the map was used, and found to be wrong.

Bridges are clearly shown where they were available, and several alternative routes are given. The map would have been useful both for pilgrims while making the journey, and during the preparation beforehand. No date is known.



23
Title [Jagannath Temple, Orissa]
Size 270 x 150 cm
Language —
Script —
Material Cloth
Location Paris:Bibliothèque Nationale, Manuscrits Orientaux
Cat. no. Suppl. Persan 1041
Bibliography —

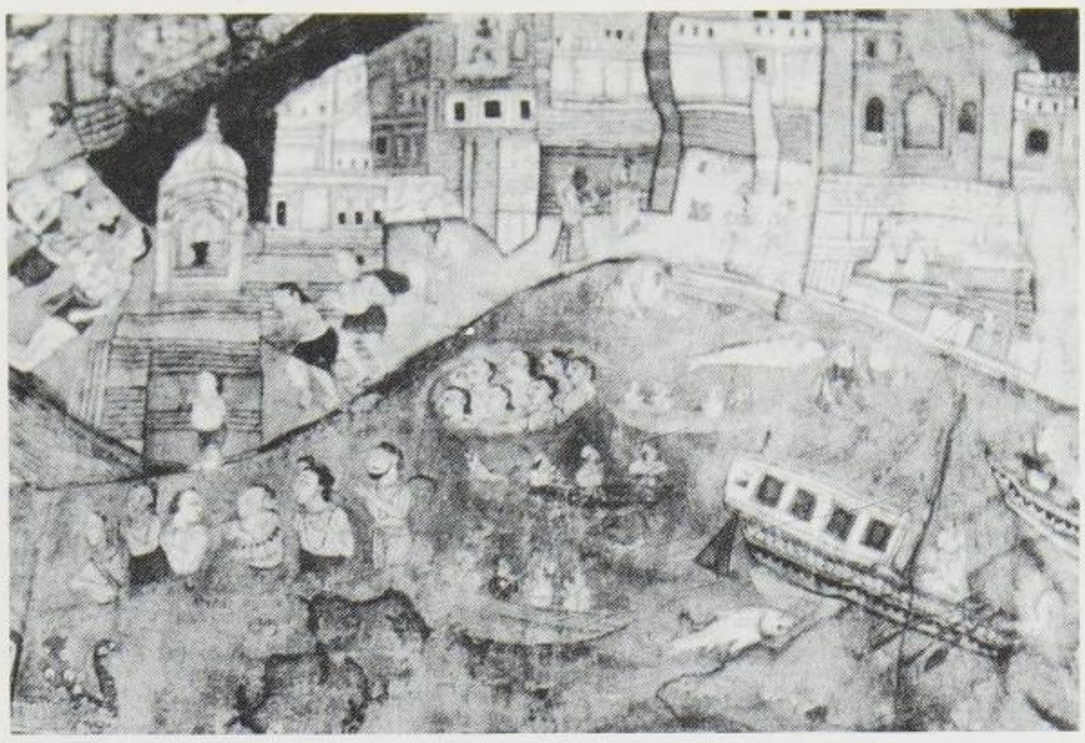
23
The temple at Puri on the east coast is possibly the most holy Vaishnavite shrine in India. Dedicated to Jagannath it was completed in its present state at the end of the 12th century. This map clearly shows the sacred enclosure in the form of a square, surrounded by a high wall. The smaller shrines within the wall are shown symbolically, and far fewer than the hundred and twenty reputed to be there. The sea shore can be seen at the bottom corners, coloured black. The style of the painting is typically Orissan, and it possibly dates from late in the 19th century.

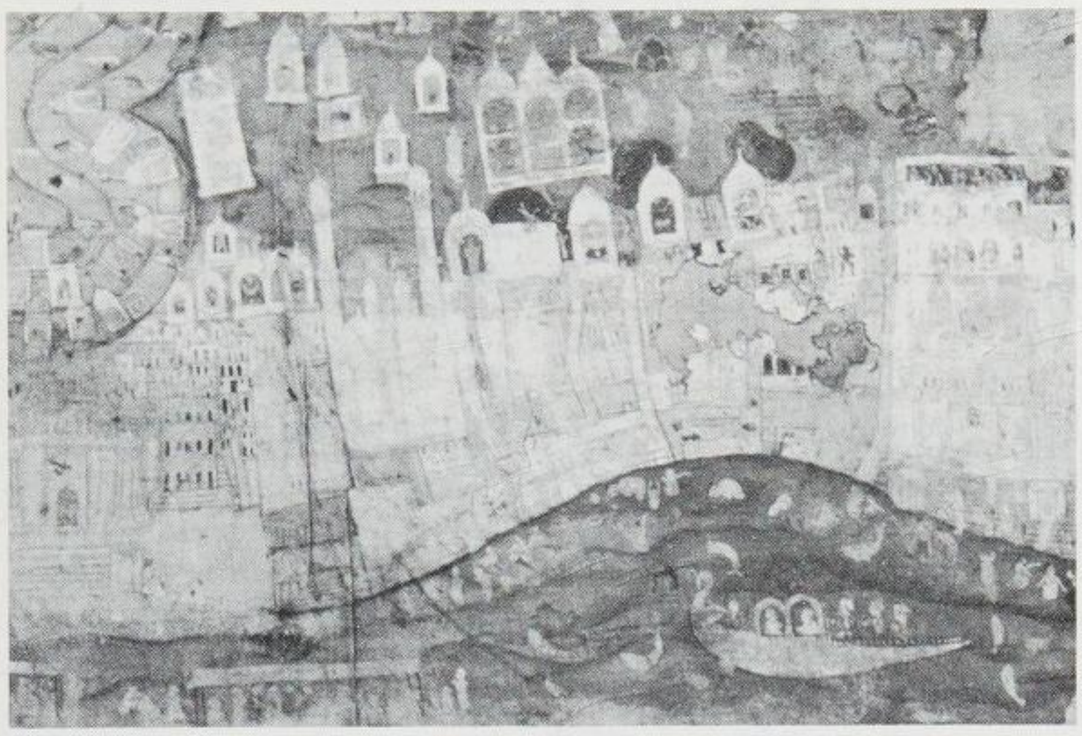


24
Title [Ujjain]
Size 32.5 x 24 cm
Language —
Script —
Material Paper
Location New Delhi: National Museum
Cat. no. Acc. 59.1284/7
Bibliography —

24
There is no text to give a title to this painting, but its features are sufficiently accurate to identify it as Ujjain, one of the seven cities sacred to Hindus, and capital of the state of Malwa. This town marked the first meridian for early geographers, and Sawai Jai Singh built an observatory here in the second decade of the 18th century. In 1792 Ujjain was taken and burnt by Holkar, after the disintegration of the Mughal empire, but later fell into the hands of his rival Daulat Rao Scindia, who made it his capital until he moved to Gwalior in 1810. The Scindia sun can be seen prominently at the top of the map, so it is likely that the map was drawn when Scindia had his residence here.

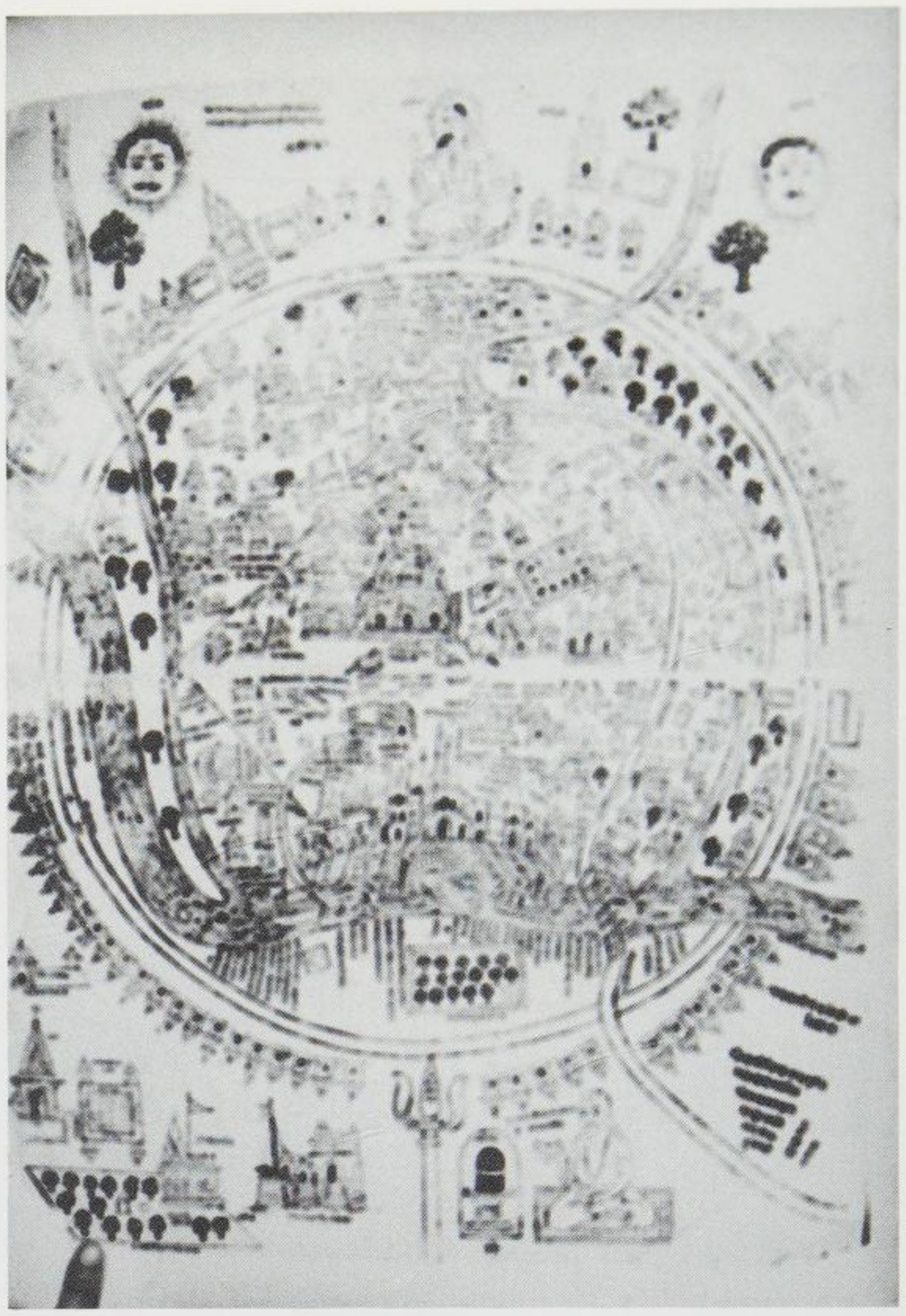
The town is shown in the centre, within the folds of the sinuous river Sipra. At the left is the Maha-kali temple, while the Mangalnath temple can be seen at the bottom right. The seven water tanks in the groves around the city are clearly marked, though the intervening areas are filled with stylised people and trees.





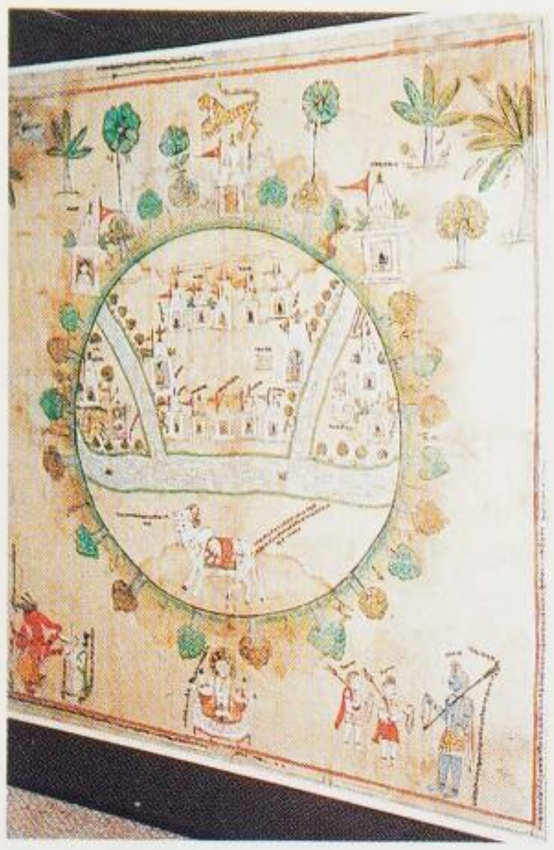
25
Title [Varanasi]
Size 325 x 229 cm
Language —
Script —
Material Cloth
Location New Delhi: National Museum
Cat. no. 61.935
Bibliography —

25
The condition of this very large map has suffered from neglect, and no full photographs are at present available. It is of a sombre colour, and crowded with pilgrims making their way along the seven paths around the holy city of Varanasi. The river Ganges flows along one length of the map, and the town is arranged in a semi-circle on the northern bank. The temples could probably be identified from the elevations. In the lower detail the mosque built by Aurangzeb from the stones of destroyed temples is prominent.



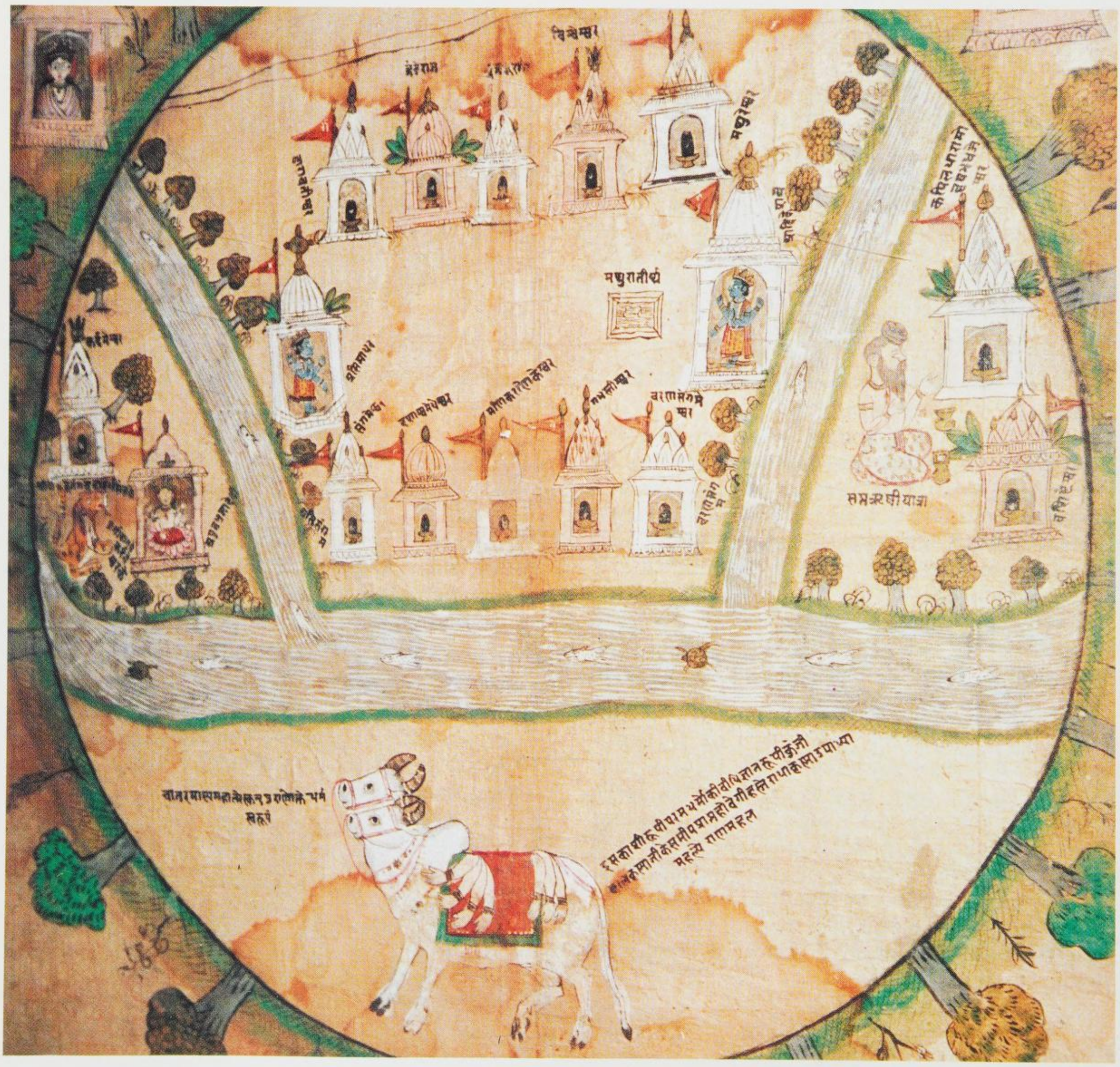
26
Title [Plan of Kashi]
Size 50 x 64 cm
Language Hindi
Script Devnagri
Material Printed on paper
Colours Black, red, blue, yellow
Location Baroda: Collection Rini Dhumal
Cat. no. —
Bibliography —

26
Modern prints of Kashi (Benares or Varanasi) are still available for pilgrims. They lack artistic merit as well as geographical similitude, yet are pleasing in their simplicity and bright colours.



27
Title Kashi
Size 72 × 76 cm
Language Sanskrit
Script Devnagri
Material Paper
Location Paris: private collection
Cat. no. —
Bibliography —

27
Kashi, better known as Banares or Varanasi, is the subject of this map. It depicts the shrines to be visited on the 'five cos' circumambulation of the city. The river flowing from left to right is the Ganges, and it is joined by the Asi on the left and the Varuna on the right. The four traditional halting places for pilgrims are named: Kardameshvara within the circle at the left, Bhimachandi and Rameshvara outside at upper left and right, and Kapiladhara inside on the right. Between in two rows are ten of the most important Shiva linga shrines, and several other holy sites. Possibly the map is modern; the inscriptions at the top, right side, and on either side of the bull at the bottom give no information about the origin of the painting, and refer only to the religious content.



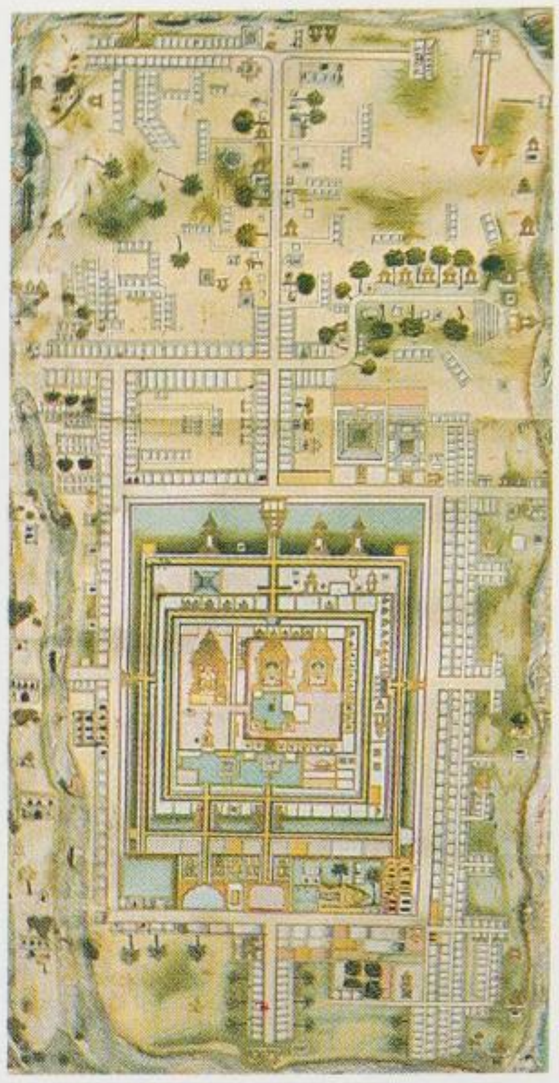
28

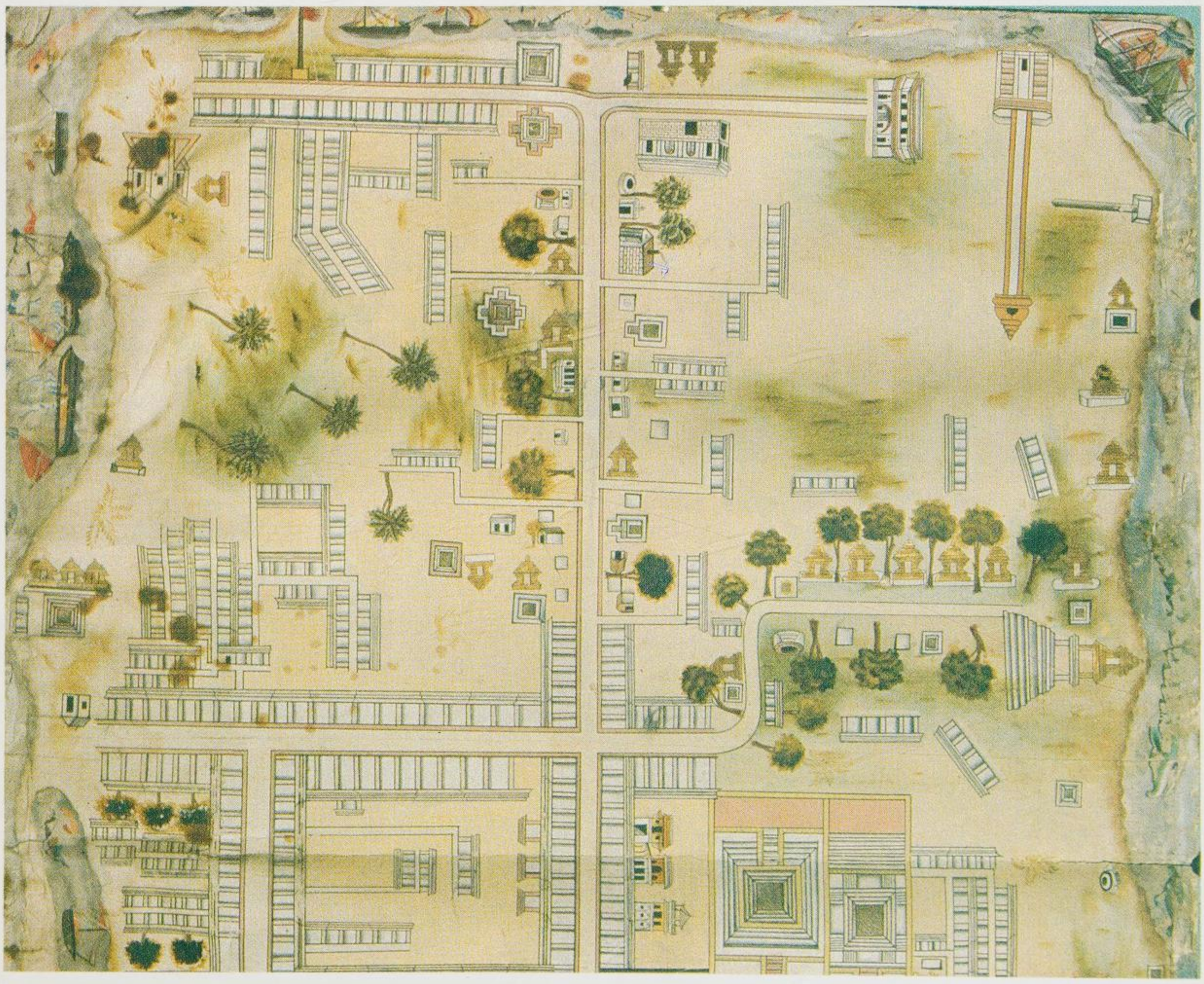
The absence of any text on this painting makes it very difficult to identify. That it is a temple on an island is clear, and this would point to the Vishnu temple on Srirangam, an island formed by two branches of the Kaveri river in south India. However, the number of Shiva linga in the temple immediately preclude this identification. The geographical details in the upper half of the painting conform with those to be seen behind the temple at Srirangam, with the roads at right angles lined with small shops. Other features are shown on the map which cannot be located on the ground, and similarly famous buildings in the temple complex are not found in the map, for example, the hall of a thousand columns.

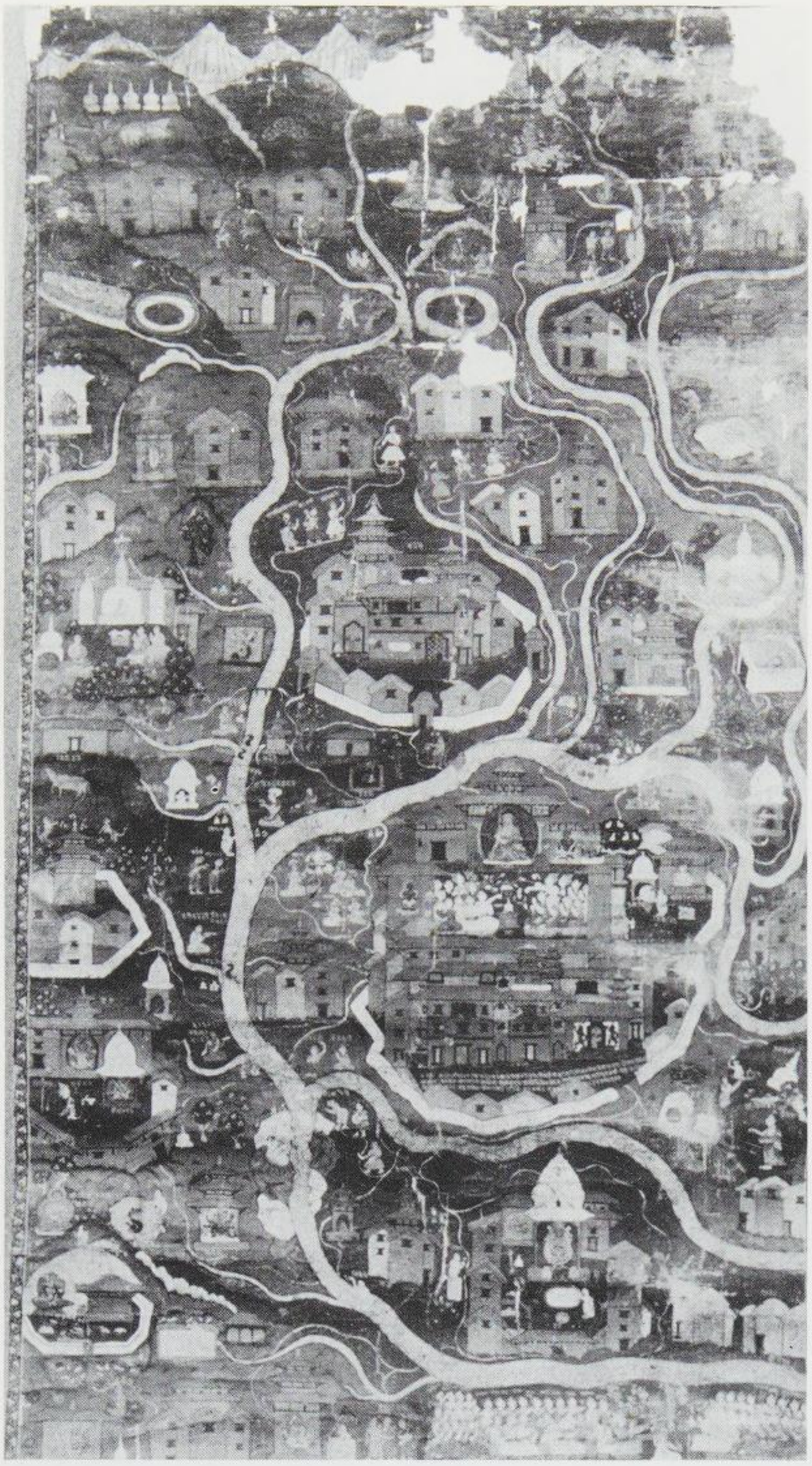
The style and colouring of the painting may suggest a Rajasthani artist, possibly from Alwar or Jaipur. It is known that many Jaipur artists were working in Tanjore in the middle of the 19th century. No similar painting has been seen.

28

Title	[Temple]
Size	63.5 x 122 cm
Language	—
Script	—
Material	Paper on cloth
Location	New Delhi: Collection K.N. Goyal
Cat. no.	—
Bibliography	—







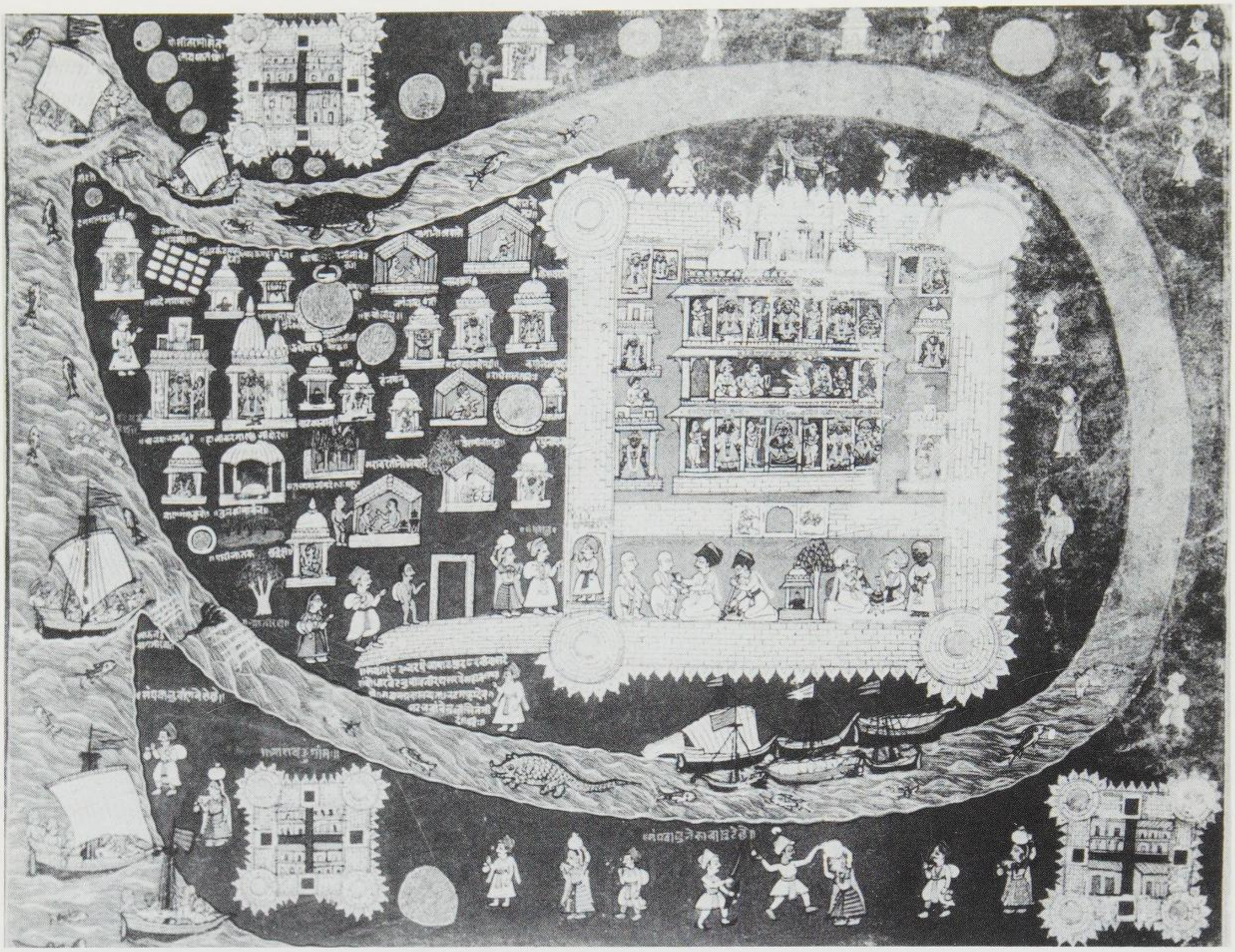
29

This map of Kathmandu Valley is one of the few to contain a date. A three line inscription below the palace complex of Patan, (about a quarter up the map) records that in the year 923 Newar Samvat (1802 A.D.) Shri Chikidhi donated this *paubha*, wall-hanging. With him in this noble deed were his wife, daughter and son, and several other named persons. They are shown several times on the map, at various stages of the pilgrimage to the holy shrines in the valley.

The temple at the bottom is the shrine of Machchhendranatha at Bungmati; above that is Patan, and then Swayambhu to the west of modern Kathmandu town. In the north, at the top of the map, are the snow-clad peaks of the main Himalayan ranges, and other named shrines dot the map. In north-west is Jomsong, and in north-east Vajrayogini.

The rivers are clearly marked, the roads too. Bridges are shown in detail, though whether the different number of spans was noted on the ground, or decided by the artist, is not known. While not being accurate from a surveyor's view, the map provides both a pleasing picture, and a realistic attempt to depict the geographical features of a large area.

29	
Title	[Kathmandu Valley]
Size	82 x 152 cm
Language	Sanskrit and Newari
Script	Newari
Material	Cloth
Colours	Black, red, green, dark green, blue, yellow, gold and white
Location	New Delhi: National Museum
Cat. no.	Acc. 56.116/8
Bibliography	Banerji and Sharma in *Marg*, Vol. XXXVIII, pp. 77–80



30
Title [Sankhodar Bet]
Size 32 x 25 cm
Language Rajasthani
Script Devnagri
Material Paper
Location Bombay, Prince of Wales Museum
Cat. no. Acc. 70.4
Bibliography —

30
The date of this map has been supplied in the text as 1773 A.D., which links it roughly to the map of Dwarka which follows, though there is no similarity in style between the two. The name Sankhodar comes from *shankh*, the conch-shell, which is the shape of the island; the shells were also exported from here as far afield as Orissa.

Each temple has been named on the map, though few geographical features have been given. Thus pilgrims are shown, but not the road on which they are walking. The thick walls of the central temple are shown in plan, though the bricks of which they are built have been drawn from a level viewpoint. Map-like features have been incorporated into a narrative picture.

31
Title [Dwarka]
Size 178 x 175 cm
Language Rajasthani
Script Devnagri
Material Cloth
Location Jaipur: City Palace Museum
Cat. no. 139
Bibliography Chandramani Singh in *Facets of Indian Art*, p.186–88

31

The two islands in this map are on the extreme west of India on the Gujarat coast. Dwarka was the adopted home of Krishna when he left Mathura, and the city he lived in was of gold. It can be seen here at the top left of the map, under the waves, since family feuding caused it to be swallowed up by the sea. Later Adi Shankaracharya established one of the four Maths here, and it became a popular pilgrimage site.

An inscription at the bottom right of the map records that it was drawn by Saligram son of Gajadhar, who was a court painter at the time of Sawai Jai Singh and Pratap Singh, in the middle of the 18th century. The style, however, bears no resemblance

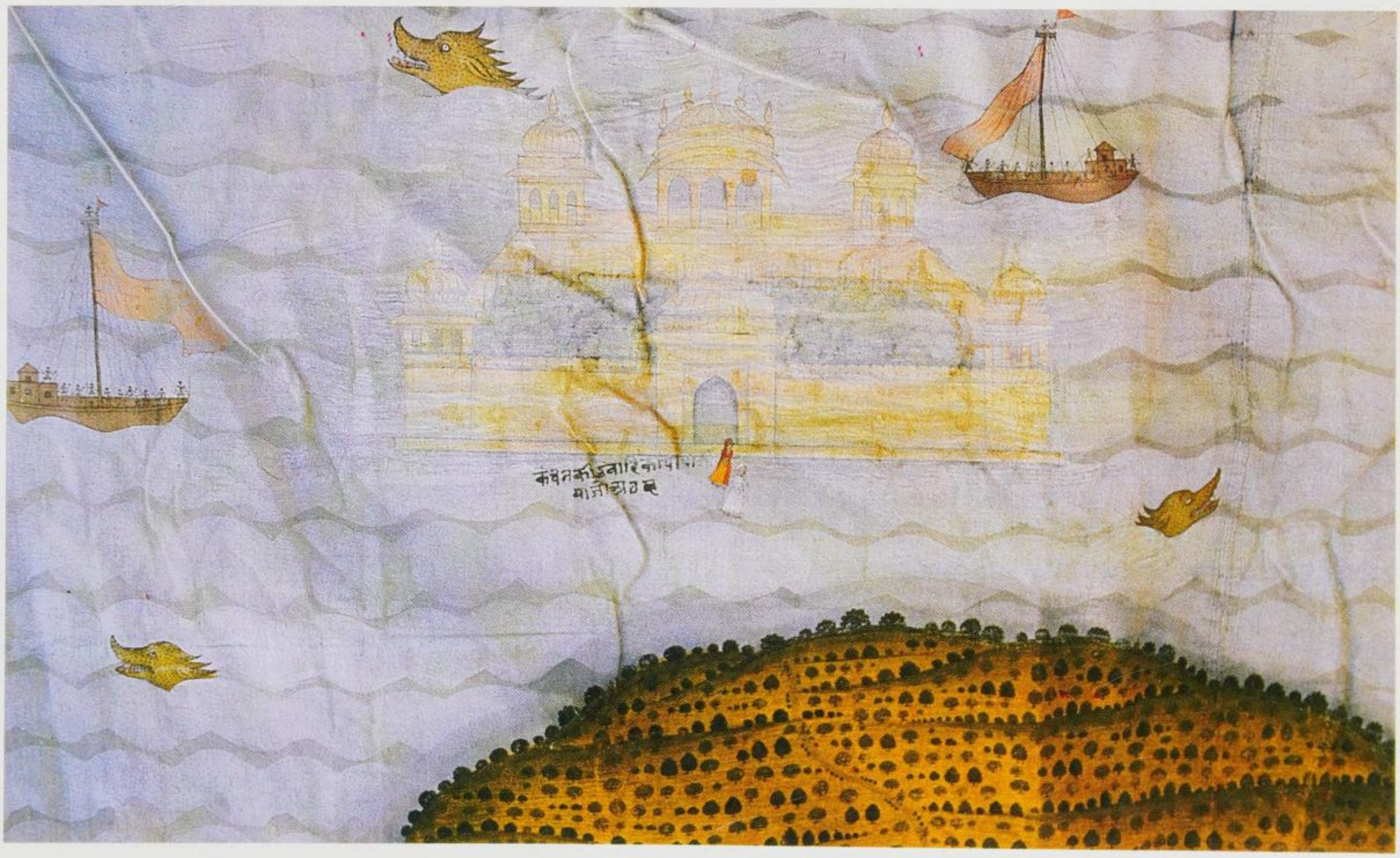
to the other maps in the Jaipur collection, being much finer in brushwork, and in the stick-like figures which crowd the temples, the beaches and the roads.

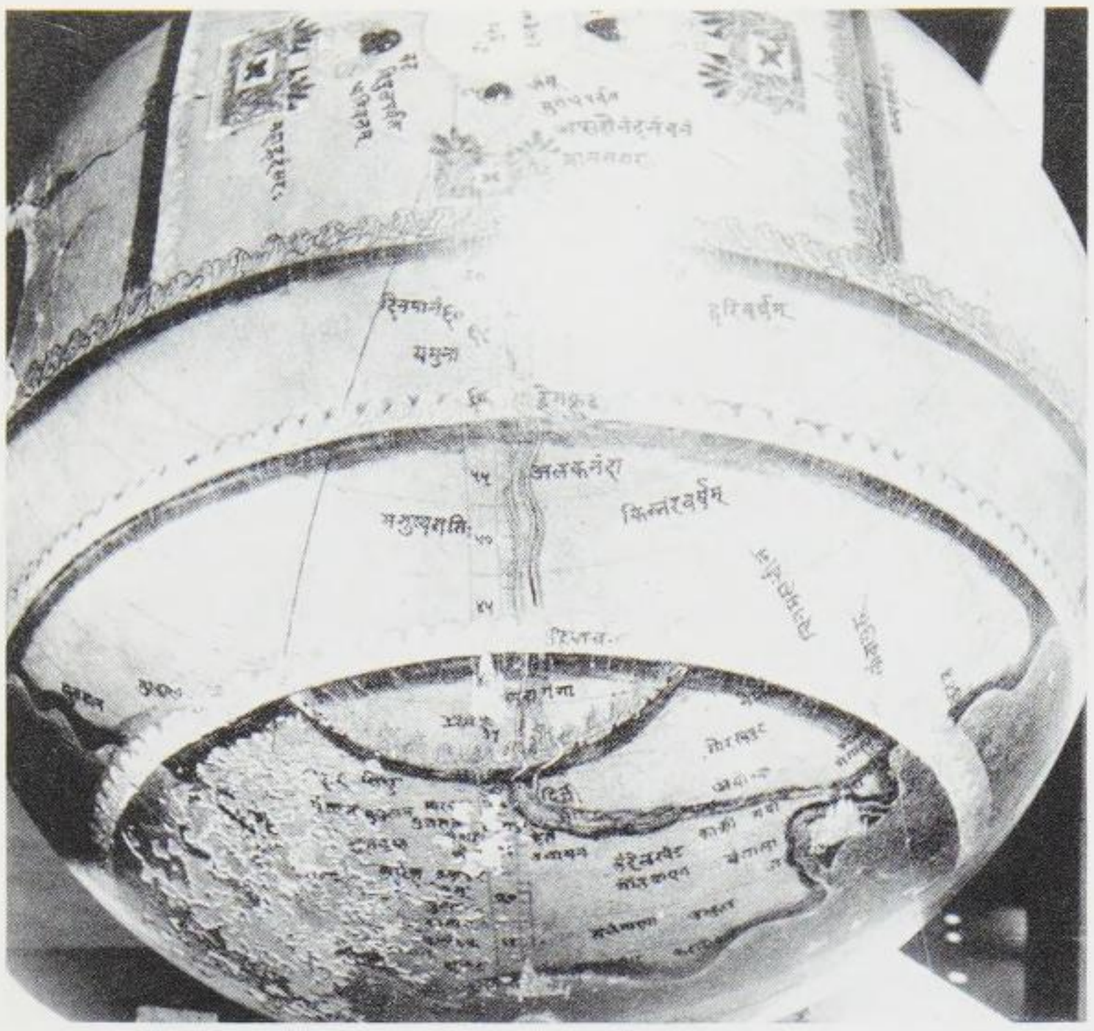
In the centre of the left side island the source of the Gomti river is marked by the Bharadwaj ashram, and as it flows into the sea it causes a whirlpool. On its north bank is Gomti city, so named, while on the southern spit of land are the five Pandavas' wells. The 'beach for bathing' is also shown. On the opposite shore of the same island is Ramro village, where pilgrims were stamped with hot irons, to show they had completed the pilgrimage. The right end of the island is the scholars' area.

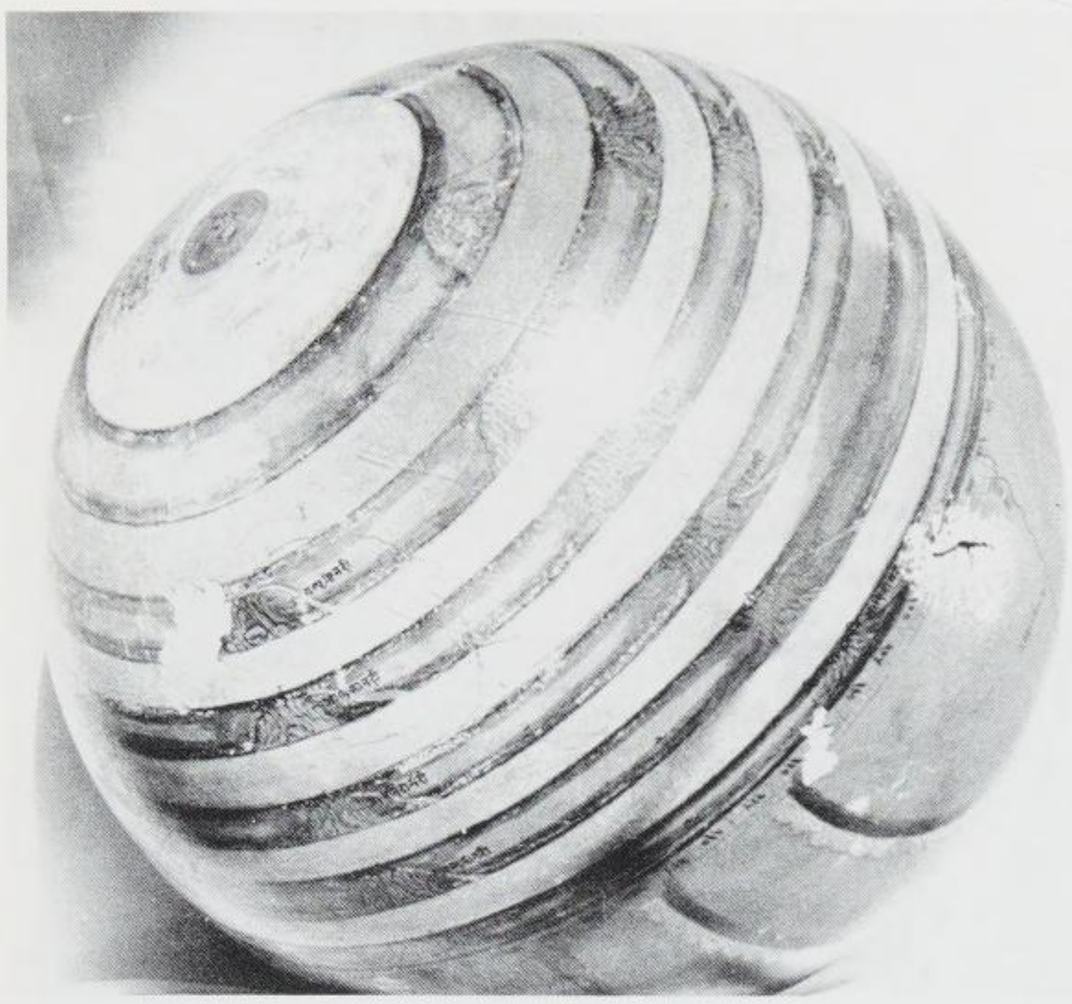
On Sankhodar island at the right, four cos across the sea, is the big Shri Dwarkanathji temple, with the administrative offices located: the meeting place of the Vaishnava sect and the police headquarters; the lands belonging to Bhagat Singh and Shahi Singh are also named, and other smaller temples.

31a. Mouth of the Gomti river.

31b. The legendary city under the sea.







32
It is likely that Sawai Jai Singh, Raja of Jaipur, ordered this large hollow globe in the second decade of the 18th century. Jai Singh was a keen astronomer, and studied European and Arabic texts. The globe is a curious mixture of Hindu belief and contemporary Indian geography, with place names fitted onto a Ptolemaic shape. At the top of the globe is Mt. Meru, and the upper half covers the inhabited part of the earth. The lower half is divided into five bands of continents, with seas between.

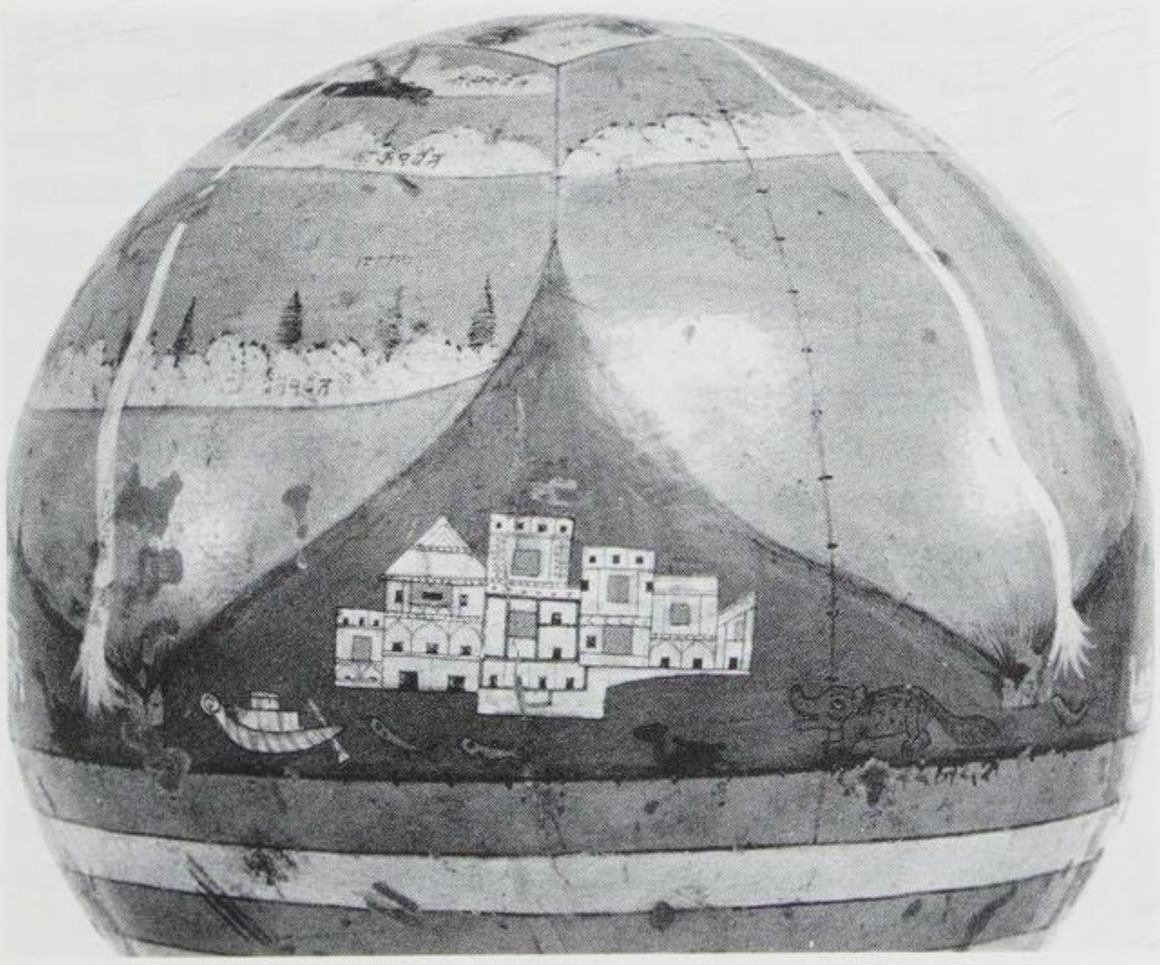
Most of the place-names that have been inscribed on the globe are in India, and they provide a wealth of detail. Flowing from Lake Manasarovar are the tributaries of the Ganges; the Alaknanda is named below the second range of mountains, among which is Hemkunt. The Yamuna and the Ganga flow in parallel courses past Kashmir, through a semi-circular range of foothills, and turn east towards the sea. The temple of Jagannath is painted gold at the mouth of the combined river. North of it are Calcutta, Gangasagar and Assam. Delhi, Agra and Amer(Amber) are named, as well as the Maratha towns of Pune and Satara.

Beyond India to the west places named are Gandhar, Khorasan, Turkhan, Mecca, Medina and the port of Romak (probably in Turkey).

32. Three views of Sawai Jai Singh's globe:above left (a) showing Mt. Meru, and below (b) the lower, Puranic part; opposite above (c), the Indian sub-continent.

32
Title [Globe, according to Iskanda Purana]
Size Diameter 43 cm
Language Sanskrit and Hindi
Script Devnagri
Material Papier maché
Colours Brown base, blue water with white and red fish, white, gold, red, purple mountains, yellow top and bottom
Location Varanasi: Bharat Kala Bhavan
Cat. no. 109/463
Bibliography —

33
Title [Globe]
Size Diameter 16 cm
Language Hindi
Script Devnagri
Material Wood, painted
Colours Yellow land, red inscriptions, grey water, white, green, dark blue, cream, orange
Location London: Victoria and Albert Museum
Cat. no. I.M. 499-1924
Bibliography Rawson in *Tantra, the Indian Cult of Ecstasy*, p. 115



33

This heavy wooden globe is brightly coloured, and decorative in its design, but though later than that made for Sawai Jai Singh, it gives little geographical detail. The world is in the form of an unfolding lotus of bright yellow petals, centred on Mt. Meru. Strange building complexes are shown in the sea, with no names to identify them. The boats and sea creatures are crudely drawn, and it is not clear if a story is intended, or they are purely decorative.

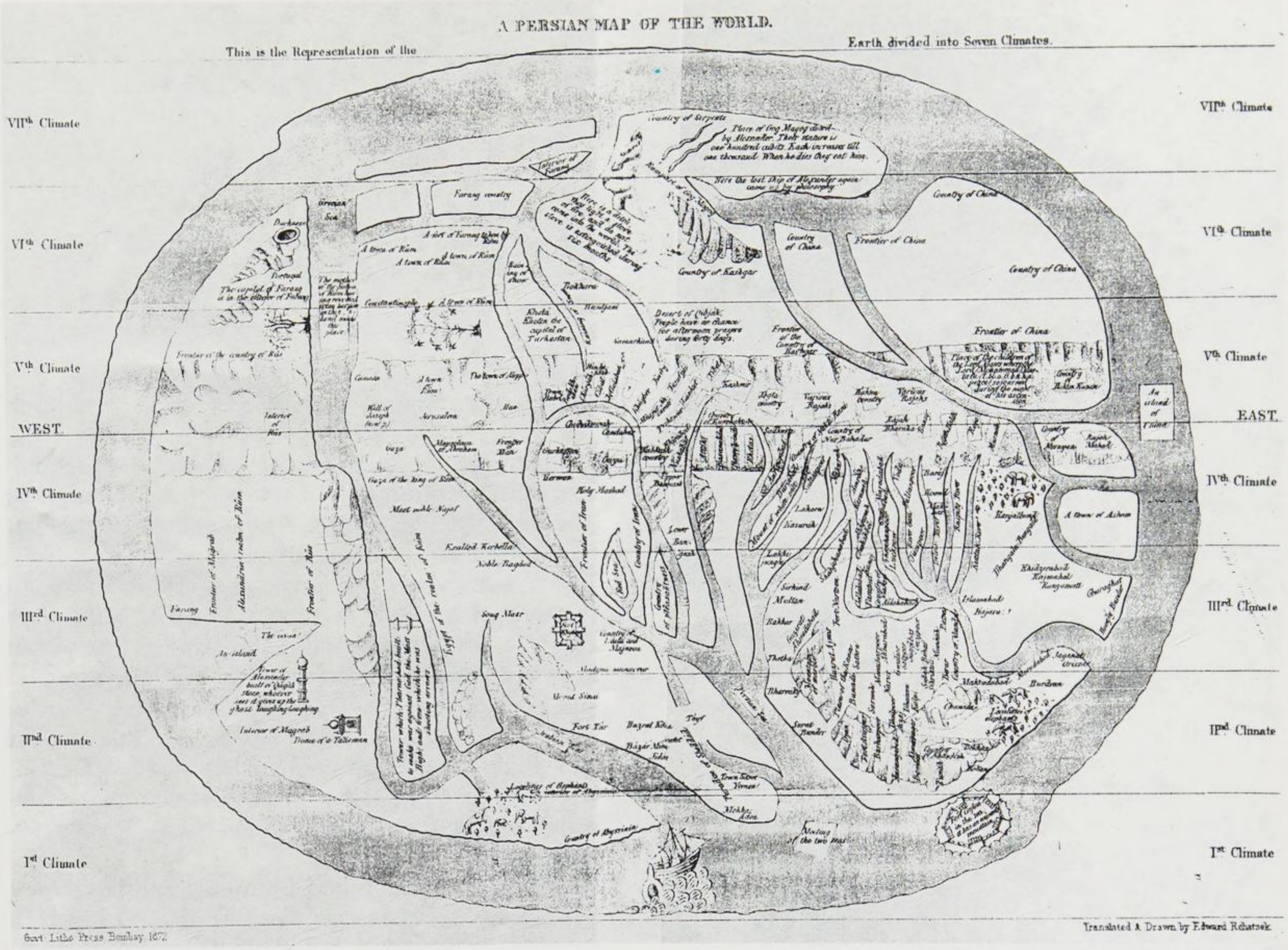
It has been suggested that this globe might have Tantric significance, but there is no evidence for this. Simon Digby suggests that the white palaces in the water might represent the islands of Sinhala, Lanka and Palanka, as described in the Puranas.

As in the globe at Varanasi, the lower rings represent the outer continents and the intervening oceans.

34	
Title	Bhugola of Ksema Karna
Size	Diameter 25.8 cm; height 22 cm
Language	Sanskrit
Script	Nagari
Material	Brass
Location	Oxford: Museum of the History of Science
Cat. no.	27-10/2191
Bibliography	Digby in *AARP*, 1973, pp. 10–31

34

This bhugola (literally 'earth-ball') is the oldest form of globe known at present to have been made in India. In the form of a brass box, it is dated in a chronogram to 1571 A.D., and was made by Ksema Karna the learned. The Sanskrit inscriptions name the countries of Jambudvipa, but they appear insignificant beside the decorative panels of dancing and seated figures. The names are from the Puranic description of the earth, with no modern additions.



35

The original map found by Edward Rehatsek is no longer available, but in his facsimile he kept 'everything exactly as it was drawn in the original, translating only the writing or transcribing it in Roman characters'. Rehatsek presumed that the draftsman was an 'Indian Musalman' because of the large number of names in India, but was surprised not to find Madras and Calcutta on it, nor any European country except Portugal. He was reminded of the 'ancient European geographical delineations which were as crude as the present one, and contained analogous superstitious descriptions of unknown and remote countries.'

Earlier versions of Indian world maps had been published nearly a hundred years before this Persian map appeared. They were of the Puranic tradition, and the earliest seems to have been the one included in the third volume of Francis Gladwin's translation of the *A'in-i Akbari* in 1786. In the preface Gladwin acknowledged his debt to Reuben Burrow for the map, and his explanation of it. Such depictions carried little geographical value, but they were all that was known at the time of Indian maps. The maps described by Francis Wilford do not seem to have been seen by other people, so there is no independent opinion on them.

Though Rehatsek thought this Persian map 'of no great value except as a curiosity', it was certainly a topographical map that showed definite areas of the world's surface, and thus a great improvement on the religious maps of India.

35	
Title	[A Persian Map of the World]
Size	?
Language	?Persian
Script	?Persian
Material	?Paper
Location	Known only from a transcription by E. Rehatsek
Cat. no.	—
Bibliography	Rehatsek in *The Indian Antiquary*, 1872, pp. 369–70

36

36
Title [Asiatick Map of the World]
Size ?
Language Persian
Script Persian
Material ?Paper
Location Known only from drawing and translation by W. Ouseley
Cat. no. —
Bibliography Ouseley in *Oriental Collections*, III, p. 75

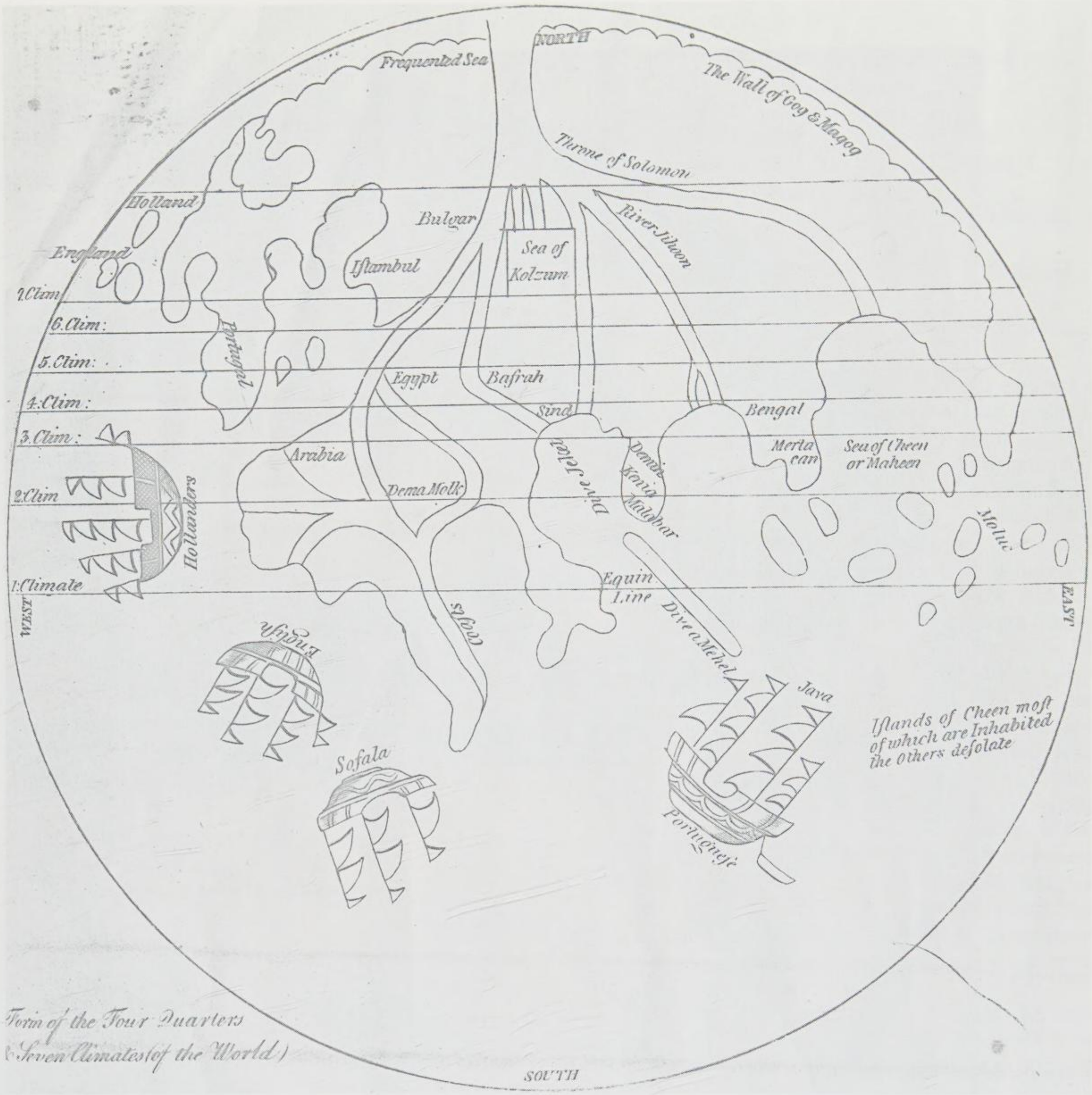
36
William Ouseley found the original of this world map in a Persian translation of *Ajaieb al Makhlookat* by Zakariah Ben Mohammed ben Mahmood Al Kamooly Al Cazviny, as he writes it, belonging to Sir Robert Chambers. He presumed that it had been transcribed in India: 'had the work been executed in Persia, it is not probable that the name of Iran would have been omitted in the map.' In his translation, he had no meaning for 'Dema mulk', 'Jiket', 'Mortahan', 'Keniat' and 'Demin', but thought that the last two might have been erroneously put for Deccan and Carnatic in Malabar. 'The most glaring mistake is that of Sea of Kolzum, (the Red Sea), for the Sea of Khozr, or the Caspian.

'The wall of Yajouje and Majouje and the throne of Solomon occupy those northern regions of which the Eastern geographers are almost totally ignorant. Holland, Walandiz, or Oulandiz, is described as an island situated north of England. The islands of Great Britain and Ireland are styled Ingriz. Below Basra we find the word Mesned, or Mesind; but the letter M is certainly redundant, and the word Sind belongs to the river which is described running in a strait line near it.

'It appears that the map has been drawn by some Indian artist acquainted with the European settlements in various parts of Hindustan, as he has marked the ships of Portugels, Ingriz, and Oulandiz. The word Sofala is written between the fourth ship and that which ought to be named the coast of Af-

37

37
Title [Map of the World]
Size 17 cm diam.
Language Persian
Script Nestalik
Material Paper
Location London: British Library, OMPB
Cat. no. Add. 7706, f. 59b
Bibliography —



36A

rica. From the relative situation of Istamboul, Constantinople, and Portugal, with the outline of the Mediterranean Sea, I am inclined to believe that the artist had seen some old European map or chart.' (Oriental Collections, 1799, pp. 75–77.)

37

Another Indian translation of al-Kazvini's *Ajaib ul Makhlukat* contains a world map that is very different from that published by William Ouseley. In his catalogue description (of Persian Mss, 1883, II, p. 462b) Charles Rieu thought that the present work dated from the 16th century, though the final lines were missing, replaced by a spurious conclusion dated 1641 A.D.

The maps originally drawn by Kazvini (died c.1275 A.D.) can be seen in Conrad Miller's *Mappae Arabicae*. Neither the land map based on seven Climas, nor the world Sea Map show the central lake with the four large rivers flowing from it. These appear to have been introduced in the Indian copies, perhaps influenced by the religious maps based on Mt. Meru.

38
Title [World map with miniatures from Iskandernama]
Size Diameter 260 cm
Language Arabic, Persian and Hindi
Script Arabic, Persian and Devnagri
Material Cloth
Location Berlin: Islamische Kunst Museum
Cat. no. Abb. 27
Bibliography *Museum Catalogue*, No. 3, pp. 12–13 and 27

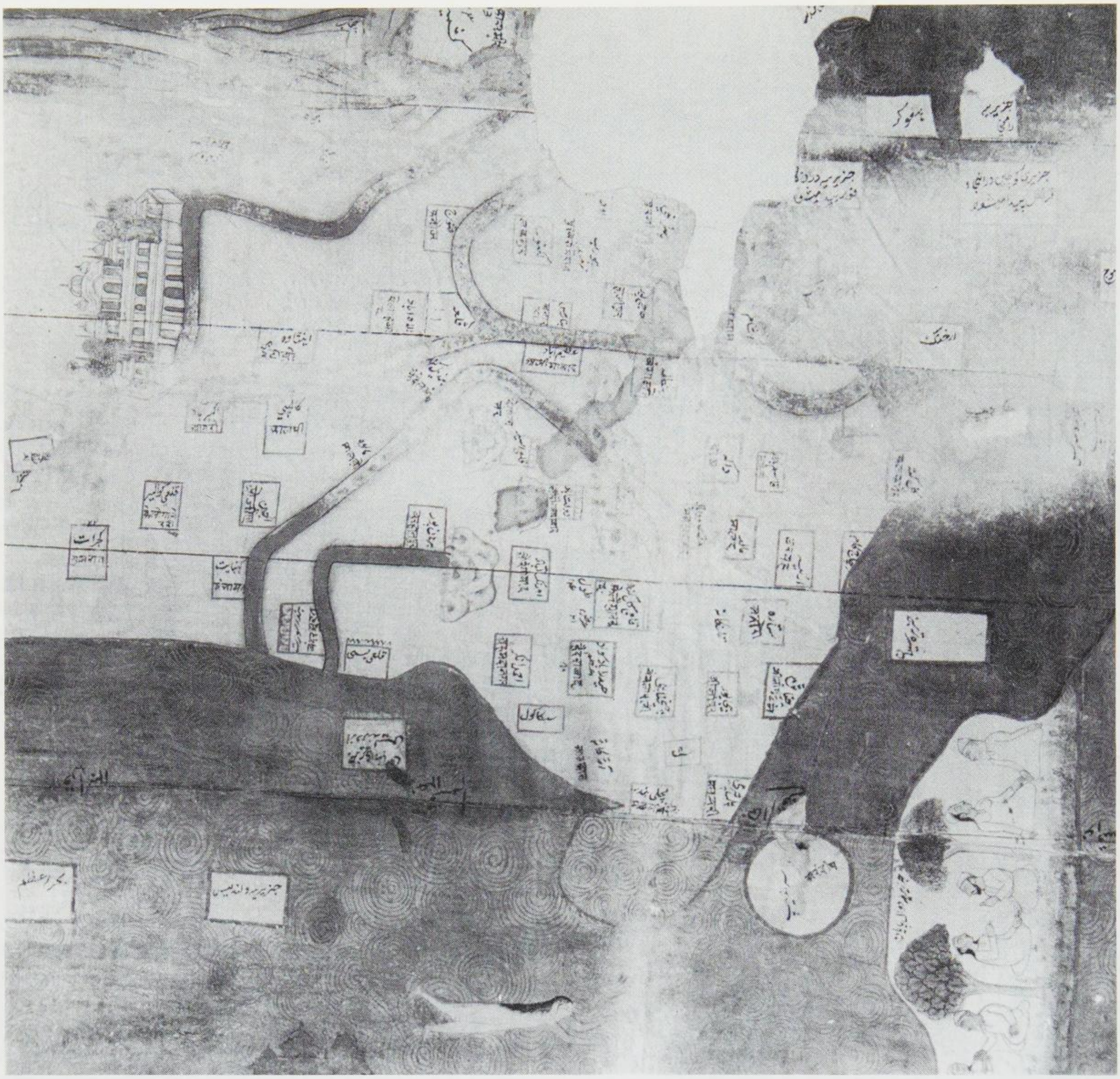
38
The Iskandernama, the epic tale of the exploits of Alexander, is known in many languages. From its origins in Pahlavi (Middle Iranian), it was probably introduced into oriental countries by an author incorrectly called Calisthenes, or Pseudocalisthenes. It is this theme which dominates in the world map shown here.

The geographical content of the map is based on the world as described by Ptolemy in the 2nd century A.D., but with important additions from the late 15th century geographer Ibn Majid. His work (no longer extant) 'Asra al-bahr', Secrets of the Sea, is named in the text around the map, and the map shows more detailed information for the parts known to him, around the Persian Gulf and the Red Sea.

The map is oriented with south at the top. Most of the descriptive geographical text is in Arabic, while some names of countries and towns are in Persian. Over the portion showing India all the names are in Devnagri as well as Arabic. It is this fact, and the style of the miniature paintings, that point to its having been made in India, possibly in Rajasthan or the Deccan. It has been suggested that it was made in the 2nd half of the 18th century.

The Indian Ocean is in the centre of the map, with a Portuguese caravel and its dinghy, both at anchor. To the right is Africa, with the Nile prominently shown. Constantinople is on a square peninsula jutting into the Black Sea. At the bottom is the Spring of Life, shown as a black rectangle. The Caspian Sea is to the left of centre, with red horses swimming in it. Diagonally below it Alexander is shown with the men who asked his help against the people of Gog and Magog, and the wall built for their defence. At the left of the map is China, with text listing the English and Dutch colonies.

In India the following places have been named in Devnagri (in alphabetical order): Ahmedabad, Ahmednagar, Allahabad, Amber, Avandip, Banda,

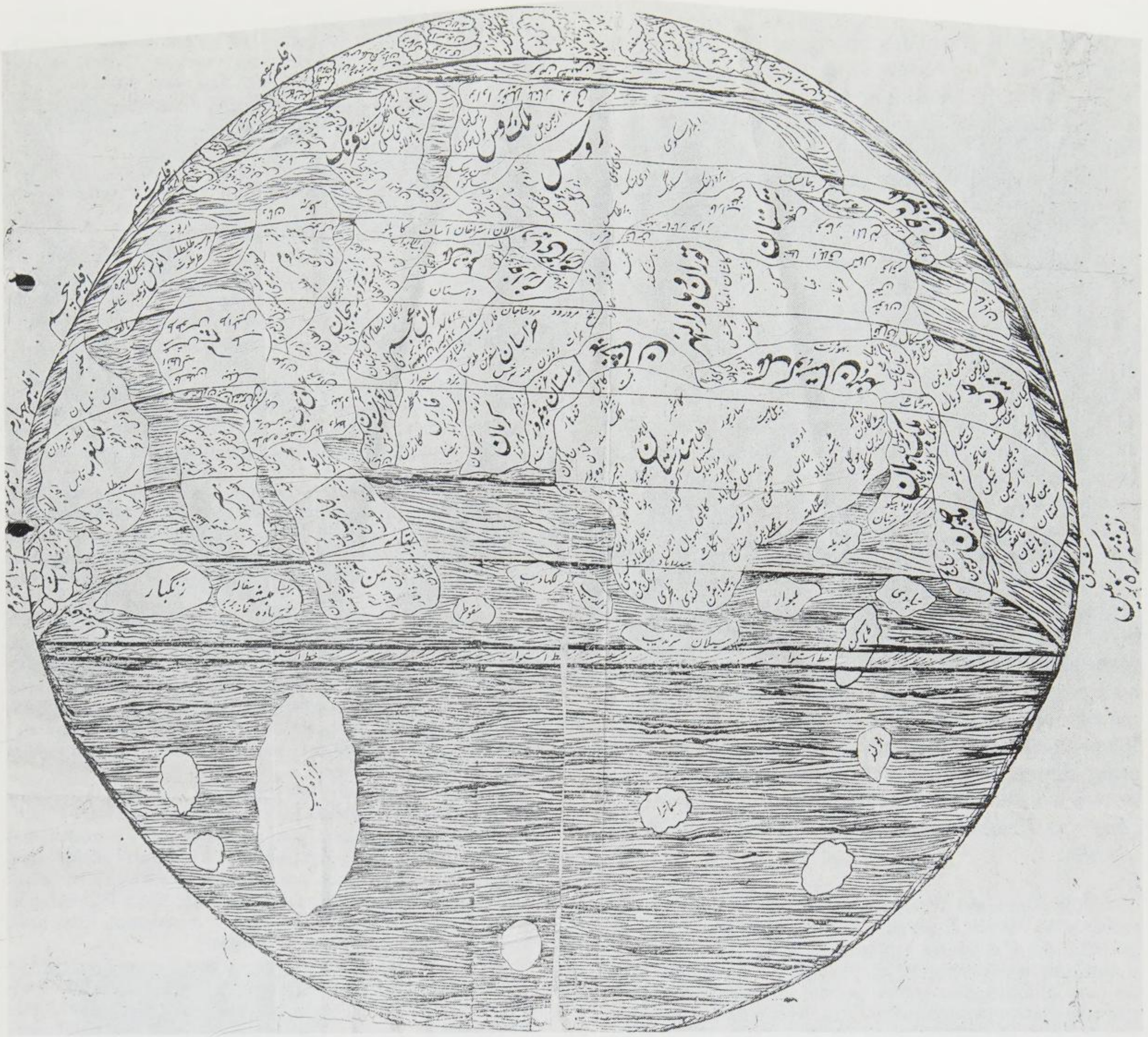


38a. Detail of the Indian sub-continent.

Bangali, Bekaner, Benares, Berhanpur, Bijapur, Burhand, Calcutta, Darya Wafuljum?, Daulatabad, Gujarat, Hajipur, Hyduab, Kabul, Kalaigule, Kalpi, Kanauj, Kashmir, Kondlankri, Kotlanka me, Kutch, Jaleor, Jodhpur, Lahor, Lucknow, Malwa, Nagor, Patna, Shri Ajmer, Surat.

No identical source for this map has been found either in India or further west. If, as seems likely, it was drawn in the late 18th century, one would expect other similar maps to surface. The large collection at Jaipur does not include a world map, and it is not known whether Sawai Jai Singh was accustomed to looking at one, apart from the Homann atlas which the Jesuits procured for him. The Maratha so-called world map [61] really covers only the sub-continent, and is in no way similar to this one. Though it is claimed that the geographical features are taken from the Ptolemaic maps, it is more likely that such information passed through the world maps based on the Islam-Atlas of Idrisi, and not directly from manuscript or printed versions of Ptolemy.

If such a map could be painted in India at that time, it is very surprising that this is the only example that has survived.



39

This map was found among some waste paper in a bazar in Delhi. The title is outside at the right, 'New World Map', and from the names that have been included, especially in northern Europe, it is presumed that the map was drawn in the 20th century. Yet there is so much outdated information that it is a strange mixture of the old and the new. The large island at the lower left is named 'Cape Island', and refers to southern Africa; other African names appear on islands further north. Ranged around the upper limit are such names as 'AEssland', 'Beljam', England and London 'both in possession of the English', and another London between Germany and Denmark (which also appears twice).

Names in India are mostly those of the world map from Berlin [38], but there are more, such as Philibit, now a small town in the foothills of Uttar Pradesh, but once on an important trade route to Nepal and China, Seringapatam which was virtually destroyed by the British in 1799, and both Hoogly (the Portuguese settlement), and Calcutta.

39	
Title	New World Map
Size	Diameter 37 cm
Language	Urdu
Script	Persian
Material	Printed from a wood block on handmade paper
Location	New Delhi: private collection
Cat. no.	—
Bibliography	—

40

Sadiq Isfahani completed his encyclopaedic work *Shahid-i-Sadiq* at Jaunpur in northern India in 1647. In the centre of the volume is an atlas of the world, comprising a map of the known world and thirty-three pages of regional maps.

All the pages have been reproduced here, but constraints of size have necessitated their near illegibility. However, a brief description of the content of each page is attempted, so that the work will become better known. The world map is on the facing page, at less of a reduction than the following pages. It belongs on f. 335r, as a full vertical page. The other maps, ff. 335v–351v, have been turned, and shown in pairs, i.e. each opening of two pages together, with ff. 335–337 on the facing page, and the others following with four openings of double pages on each page. The folio numbers have been attached to each for identification.

The world map has south at the top of the map, with degrees of longitude shown along the equator, the upper edge. Degrees of latitude are shown around the curved rim, but more important are the divisions into seven climata, or climes. The regional maps follow the pattern of the climes, with the first nine pages (ff. 335v–339v) showing the lands across the first clime, from the Maghreb Sea in the west to Waqwaq islands in the Gulf of China in the east. The other climes are similarly dealt with, right across the known world at each level, but the third and fourth climes are taken together, and the remaining three together.

f. 335r. The island at the top right corner is Akhlat Island, probably the Azores. It has been taken as 0^{o} longitude. Next to the left is Sus al Aqsa, the westernmost part of Africa. Below it is Andalusia and Frank country. The long point of Africa is called the Land of Elephants. Across the long gulf is Morocco, while across the shorter pointed gulf is Egypt, with Yemen at the upper rounded part and Tehameh on the left. Below them are Syria and Jazirah region. The Caspian Sea is the inverted shield, with Iran on the right of it, and below it, from right to left, the Qipchaq Desert, Bulgar, Russia, and Turkestan. In the Indian peninsula are the names Sind and India. The double peninsula beyond is Chin and Mahachin. Below, on either side of the long sea, are Khata region (Cathay) and the wall of Gog and Magog. The island at the far left is the group of Waqwaq islands.

f. 335v. The dark part, red in the manuscript, is the Maghreb Sea, also called Andalusian Sea, Tangiers Sea, Asvad (Black) Sea, Akbar (Great) Sea, Akhzar (Green) Sea, Ochianos (Ocean?) Sea, and Bahr-i Muhit, the Encircling Sea. At the top of the white part is written Maghreb Coast.

f. 336r. The land at the top is Belad Zankbar (Africa?). The sea below is the Zanq Sea, also called Jamir Sea and Gulf of Barbary.

f. 336v. At the top is Sudan, with Nubia and Barbar below.

f. 337r. At the top is Ethiopia, divided by the Qulzum Sea, also known as Red Sea or Aden Sea, from Arabia, with named cities of Umran, Mokha, Saba, Turbaid, Gharteh, Dasar, Sanaa and Aden.

f. 337v. Oman is named at the left tip of the land, and the sea is the Gulf of Oman, which used to be called the Sea of Fars.

f. 338r. Starting at the upper right part of the land and working line by line from right to left: Diu; Cambay; Ahmedabad, Baroda, Bharuch; Surat, Daman; Malebar?; Konkan; ?, ?; Burhanpur, Daulatabad, Dabul, ?; Ahmadnagar; Ner; Bidar. The wavy lines at the bottom right corner are the Kondavaneh (Gondwana) mountains.

f. 338v. At the top is the land of the Telangs, and at the bottom is Pegu. The sea between is called the Indian Gulf at the top and the Gulf of Chin below.

f. 339r. Chin.

f. 339v. The Gulf of Chin, with the Waqwaq Islands at the bottom left.

f. 340r. The second clime begins here. At the top is the Maghreb Sea (Mediterranean), with Sus al Aqsa below, and Land of Tangiers at the right.

f.340v. In the top margin the beginning of the third clime and the end of the first clime are written at right and left respectively. On the right side are Higher and Lower Tahirat, and the long line represents the Maghreb, with Seilmaseh half way along it. At the bottom are Marakesh on the right and Berber country in the middle.

f. 341r. Above is Barbary. Below is first the Big Pyramid, then left, the Akhim of Egypt (Sphinx?), and right, the Smaller Pyramids. Below on the left are Asboot and Aswan, and in the middle, Red Sea. The diagonal writing is Yemen Coastal Region, next to Wadi al Nasri. Vertically at the right is the boundary of Syria.

f. 341v. Top left is the Red Sea, with Yemen on the left of it and Jeddah at the lower tip.Below that are Mecca and Taif. Khamiz is in the centre, with Medina below. Above the Tay Mountains is the Wilderness of Tahama, with Najd at the left. Above the Gulf of Oman, also known as Sea of Basra and Gulf of Fars, are (right) limit of Basra region, Arab Wilderness, Lahsa and Yamameh. Bahrain island is named. The land at bottom right is the beginning of Fars region.

f. 342r. Hormuz and Qais islands are named in the Gulf of Oman at the left. Beside the mountains on the right is the boundary of Kirman and Makran. Along the coast below is written Sind coastline, and the long name parallel to it is country of Sind. Line by line, right to left in each, are the following towns: Debal; Mansurah; Diu; Bhakkar, Jam[nagar], Somnath; Kutch (extending to line above), Nahrwala; Nagor, Jalor, Ahmedabad, Kambayat. Vertically at right is the Multan boundary.

f. 342v. Working down the lines, taking squares from right to left, are: Jodhpur, Sirohi; Ajmer; Jamna river, Ganga river (outside on right), Dehli, Bayana, Ujjain, Mandu; Akbarabad, Gwalior, Sarangpur; Kabar, Saranj, Hendieh, Burhanpur; Bahraich, Allahabad, Kalinjar, Chanderi, Elichpur; Banaras, Ehtemaman; Patna, Orissa region (diagonally); Akbarnagar, Sangam; Behar Sharif; Jahangirnagar, ?; Jatia, Sylhet; Changam; Kachharah; Arkhanq. Vertically at bottom right is the region of Kuch and Kamrup. The sea at the left is the Gulf of India.

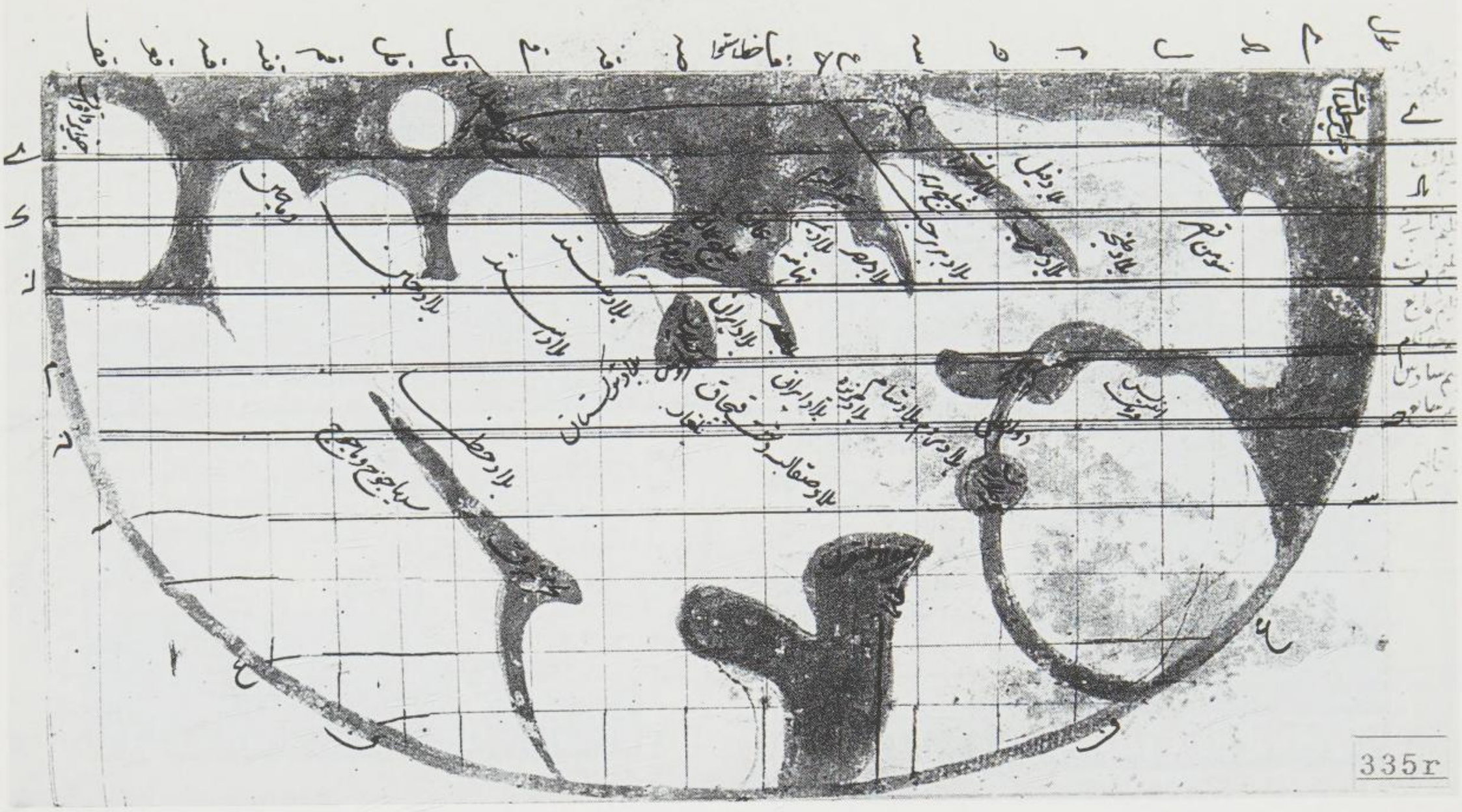
f. 343r. The region of Chin is written across the page, with Mehri Arjeen ? at the left.

f. 343v. Blank.

f. 344r. The next eight pages have the third clime on the left, and the fourth clime on the right. The boundary of Andalusia is on the right of the Sea of Sham (Galilee?), also known as Farang Sea and Fareqta Sea, and on the left is Tanjeh (Tangier). At the top is the Maghreb Sea.

f. 344v. On the right is Andalusia with the town of Qurtabeh (Cordoba). Beyond the African Sea, the two long names are Maghreb region above and African region below.In Maghreb are Upper and Lower Taherat. In the centre is Qurvan, and near the sea is Mehdieh.

f. 345r. The sea here has several names, Sea of Rum, Sham, Kabir, Africa, Farang and Constantinople. In the lower end of it is the island of Cyprus. At the bottom is the direction East. Top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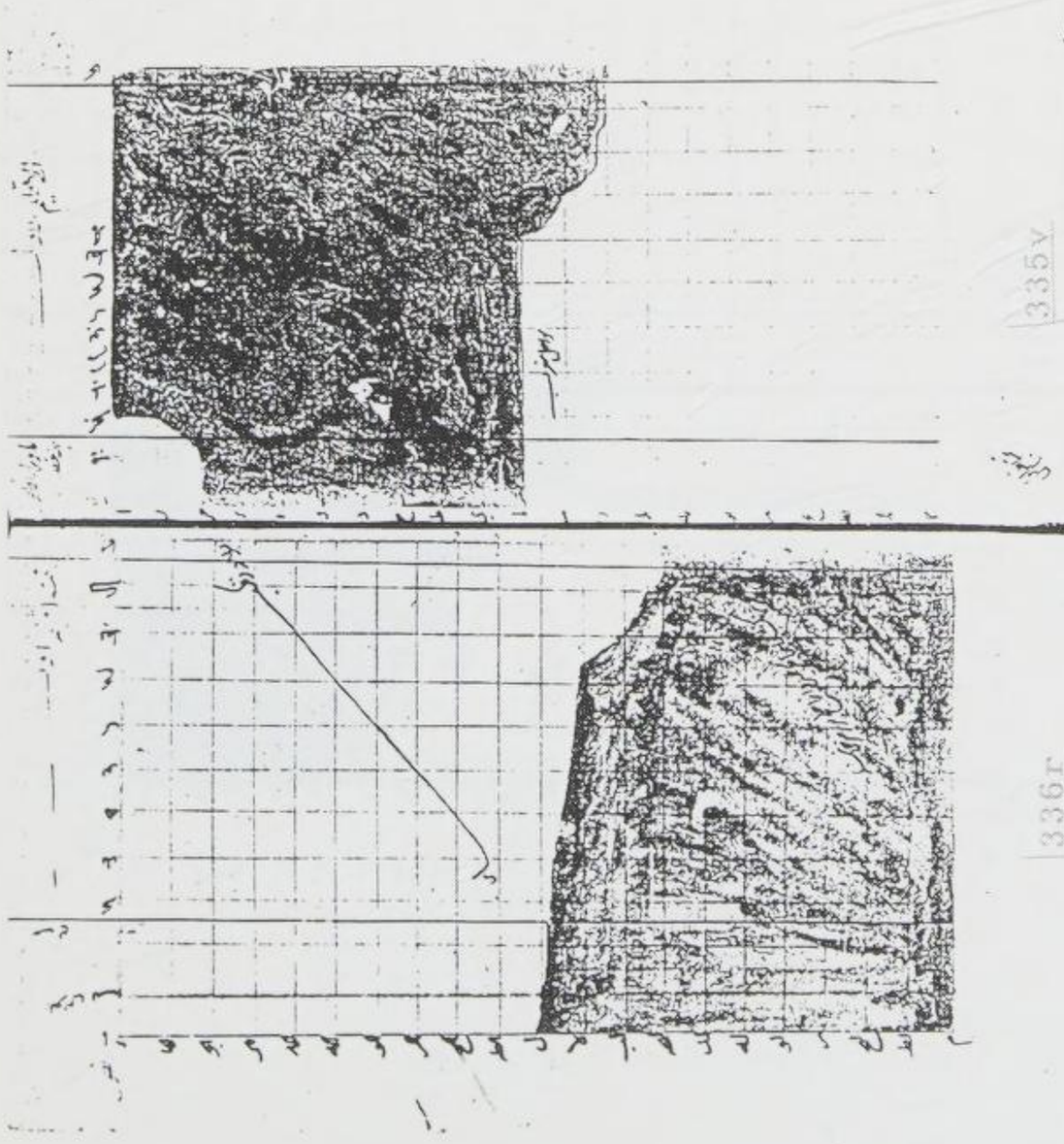
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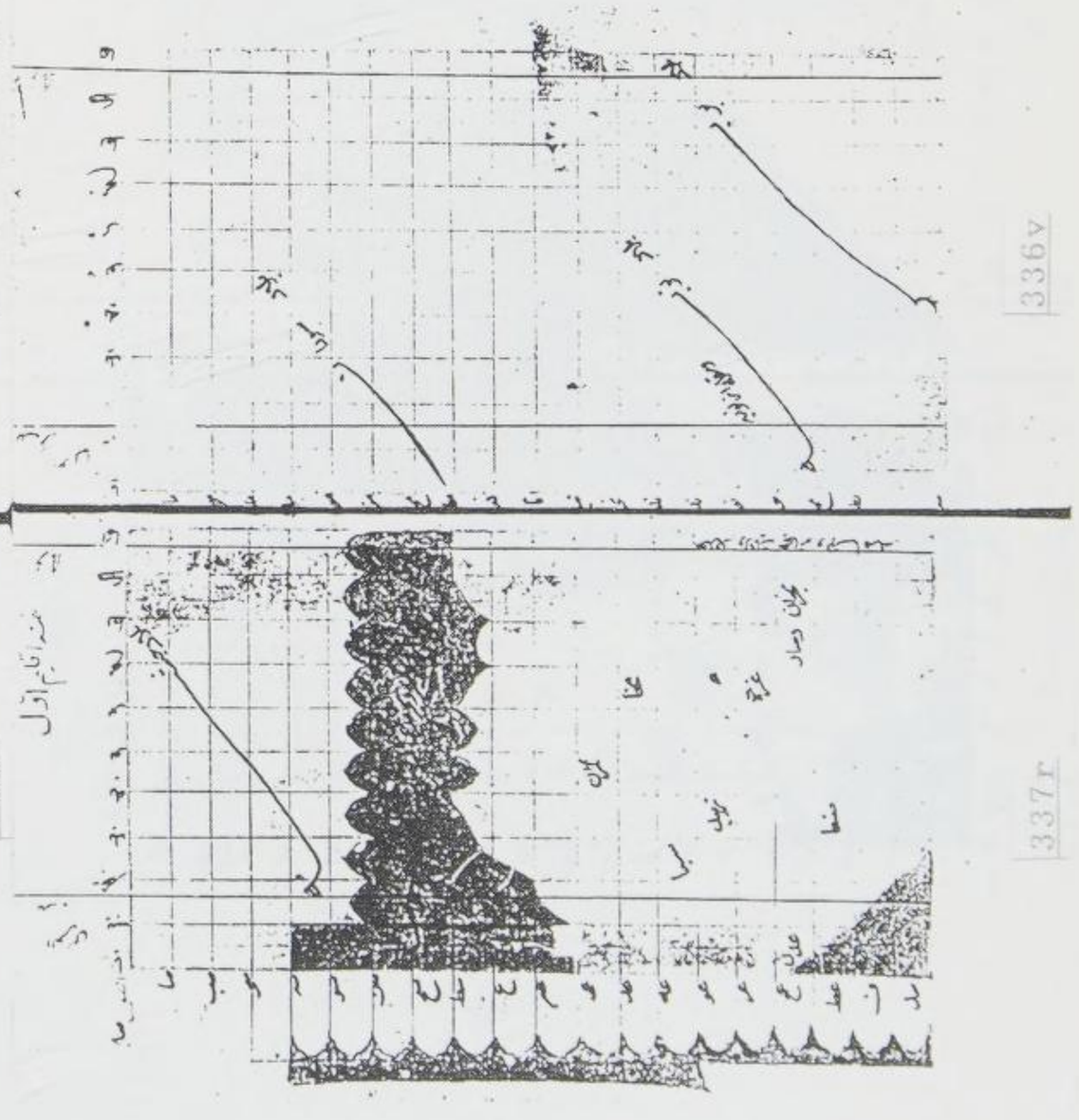
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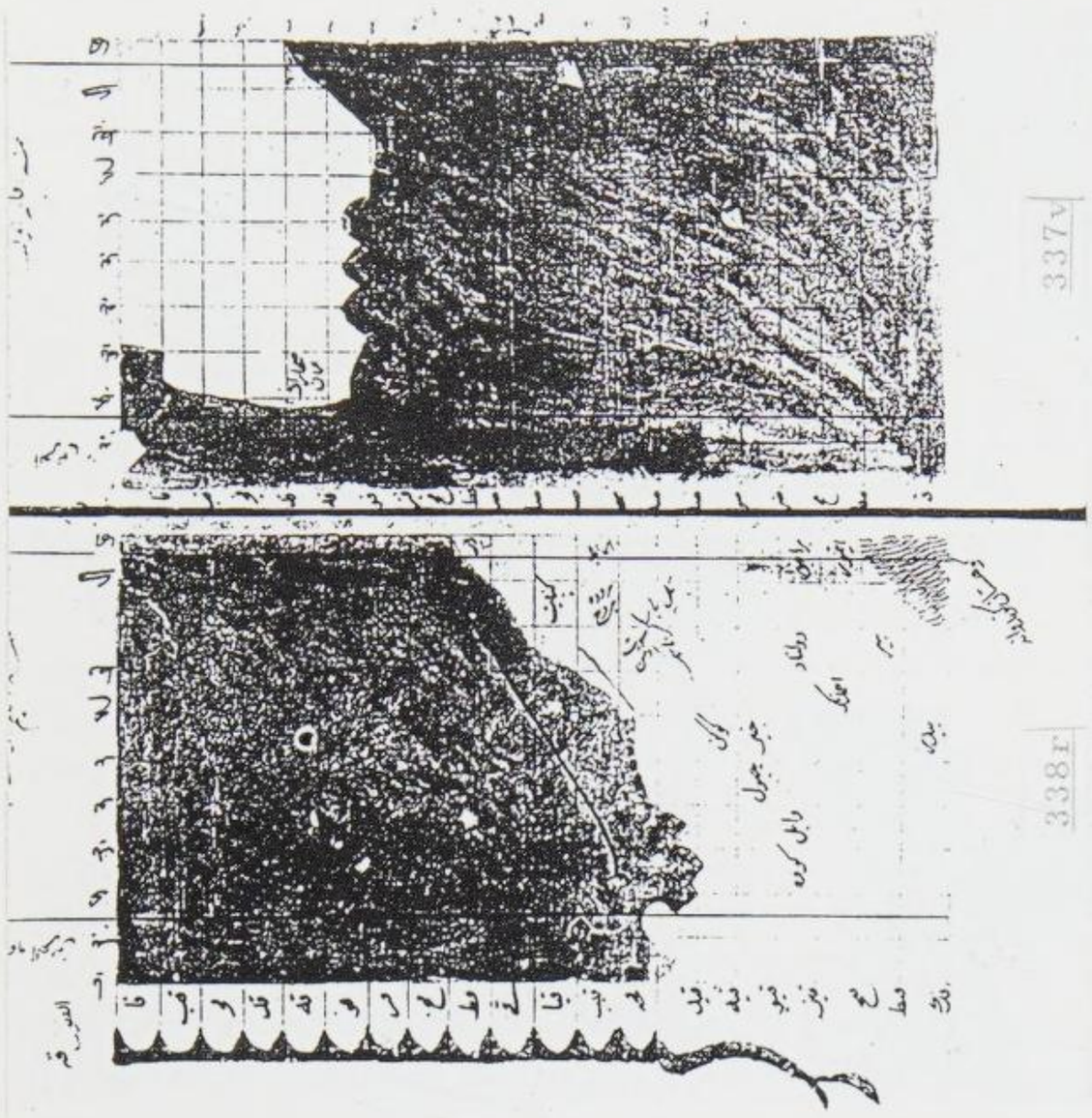
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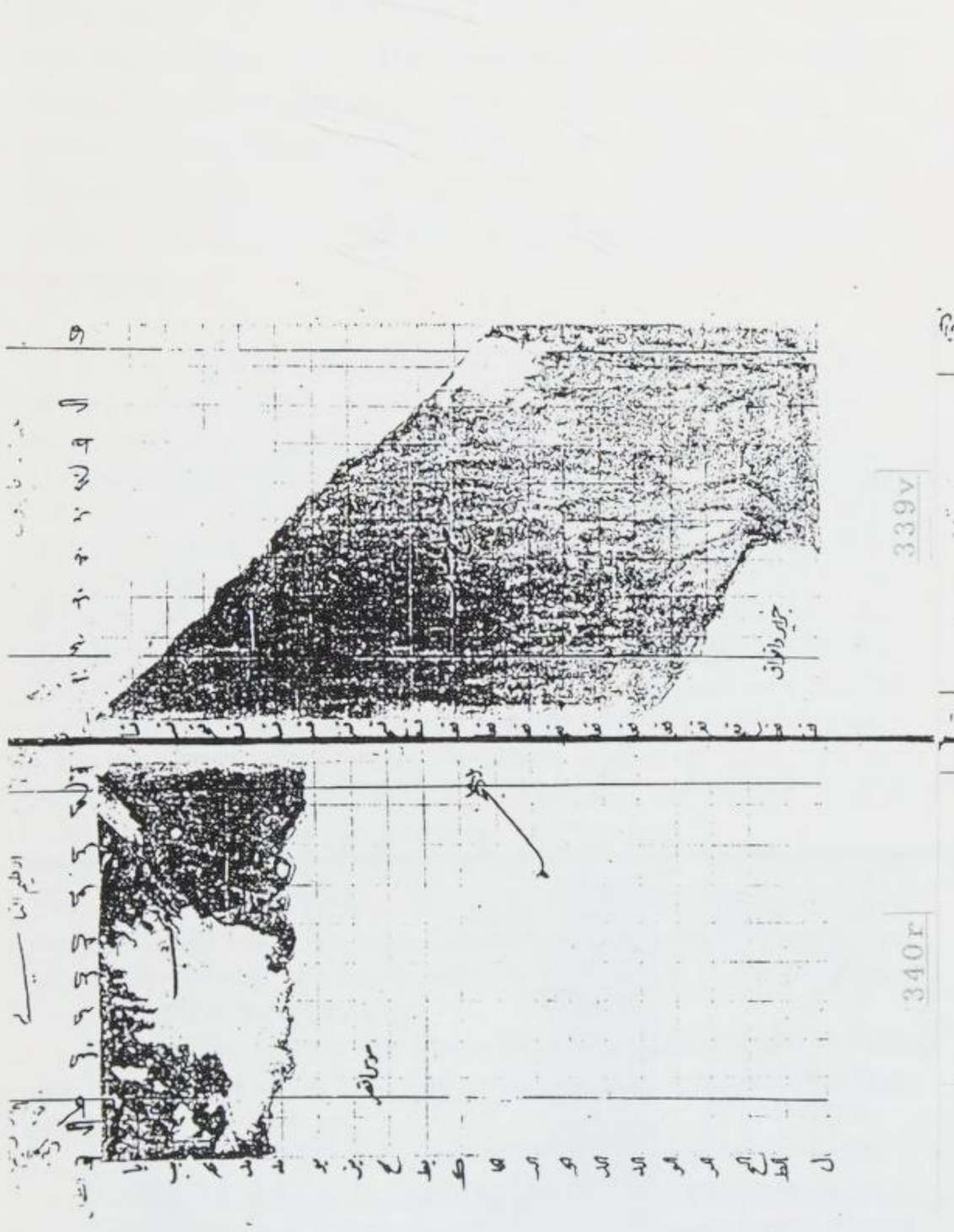
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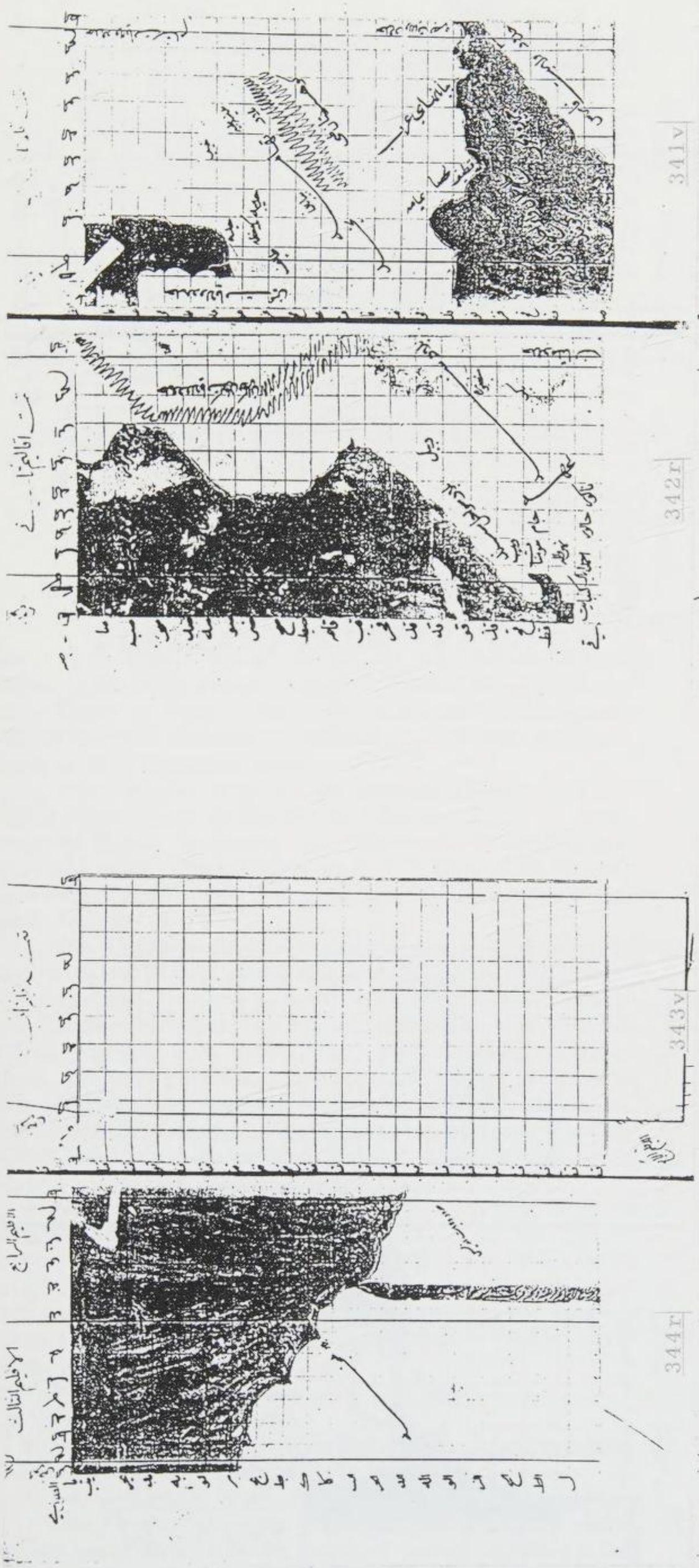

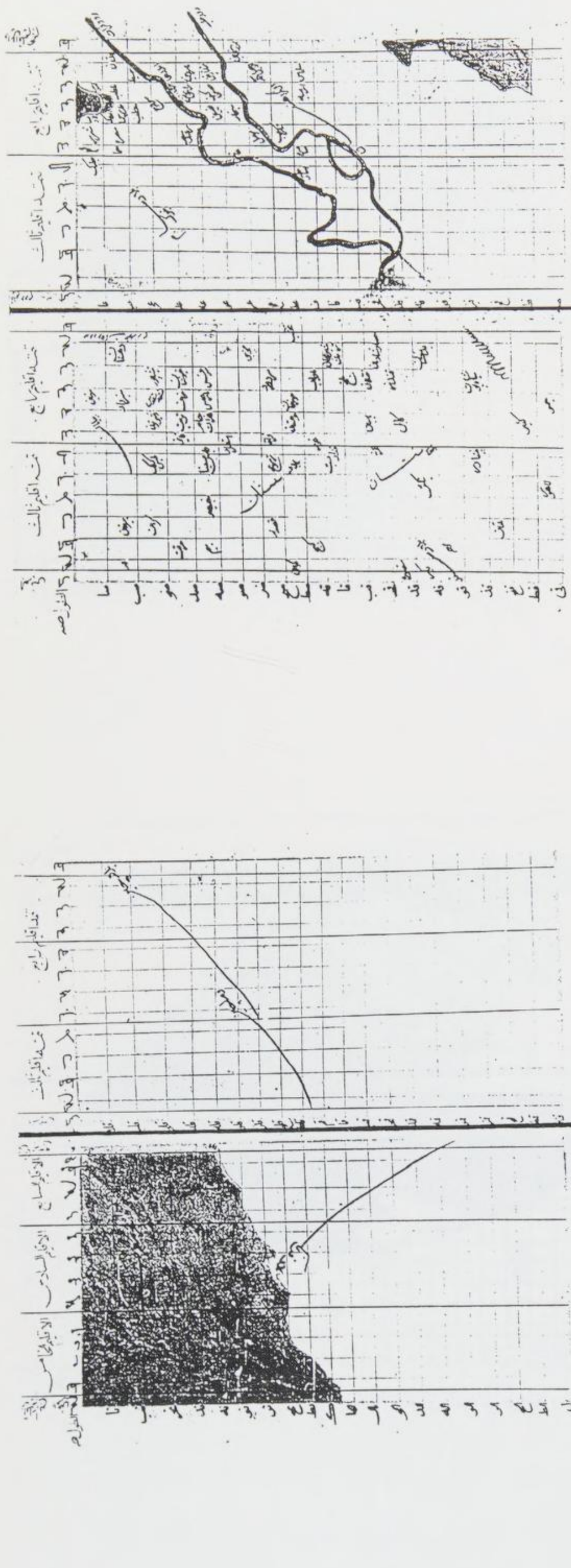
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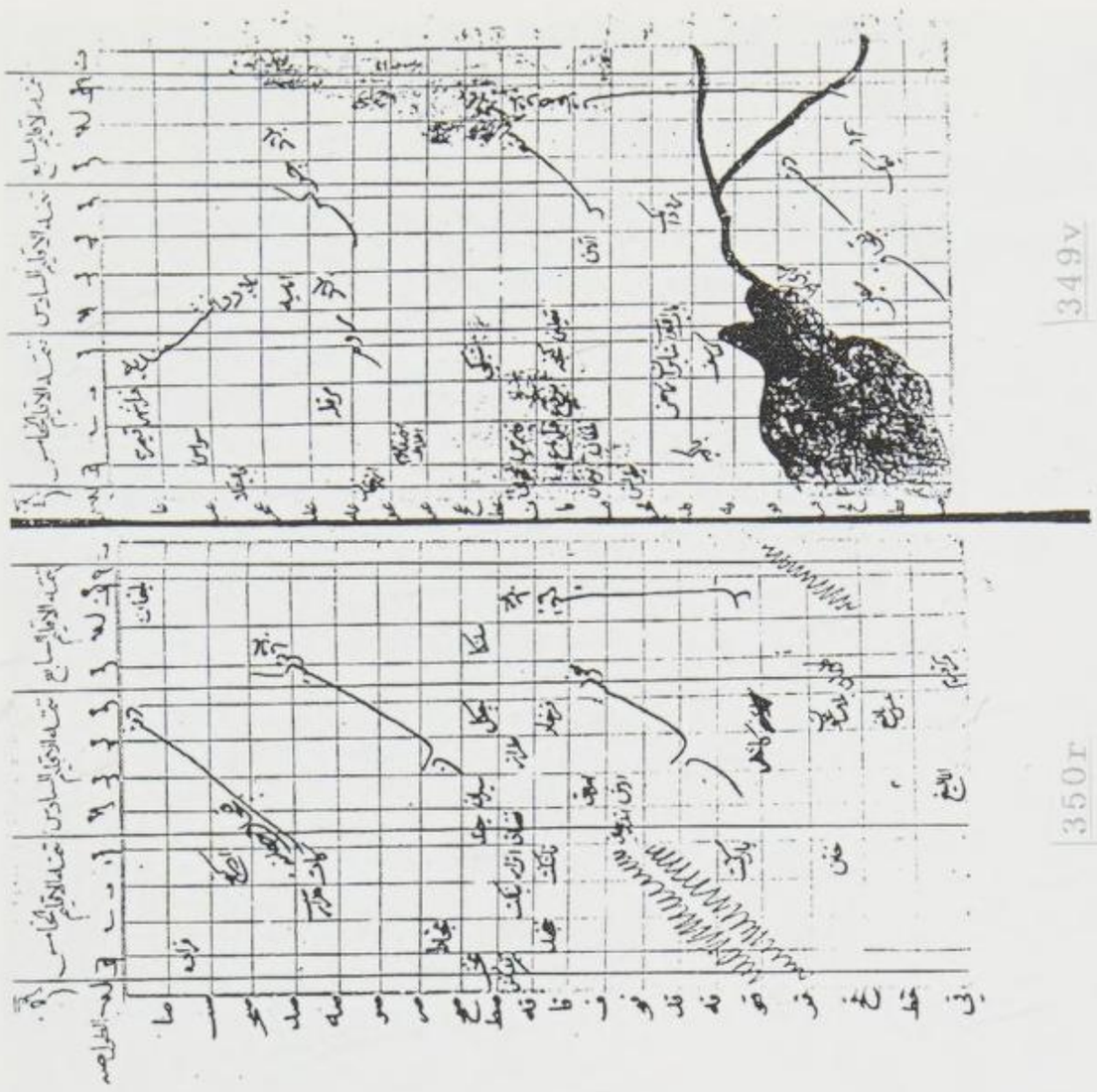
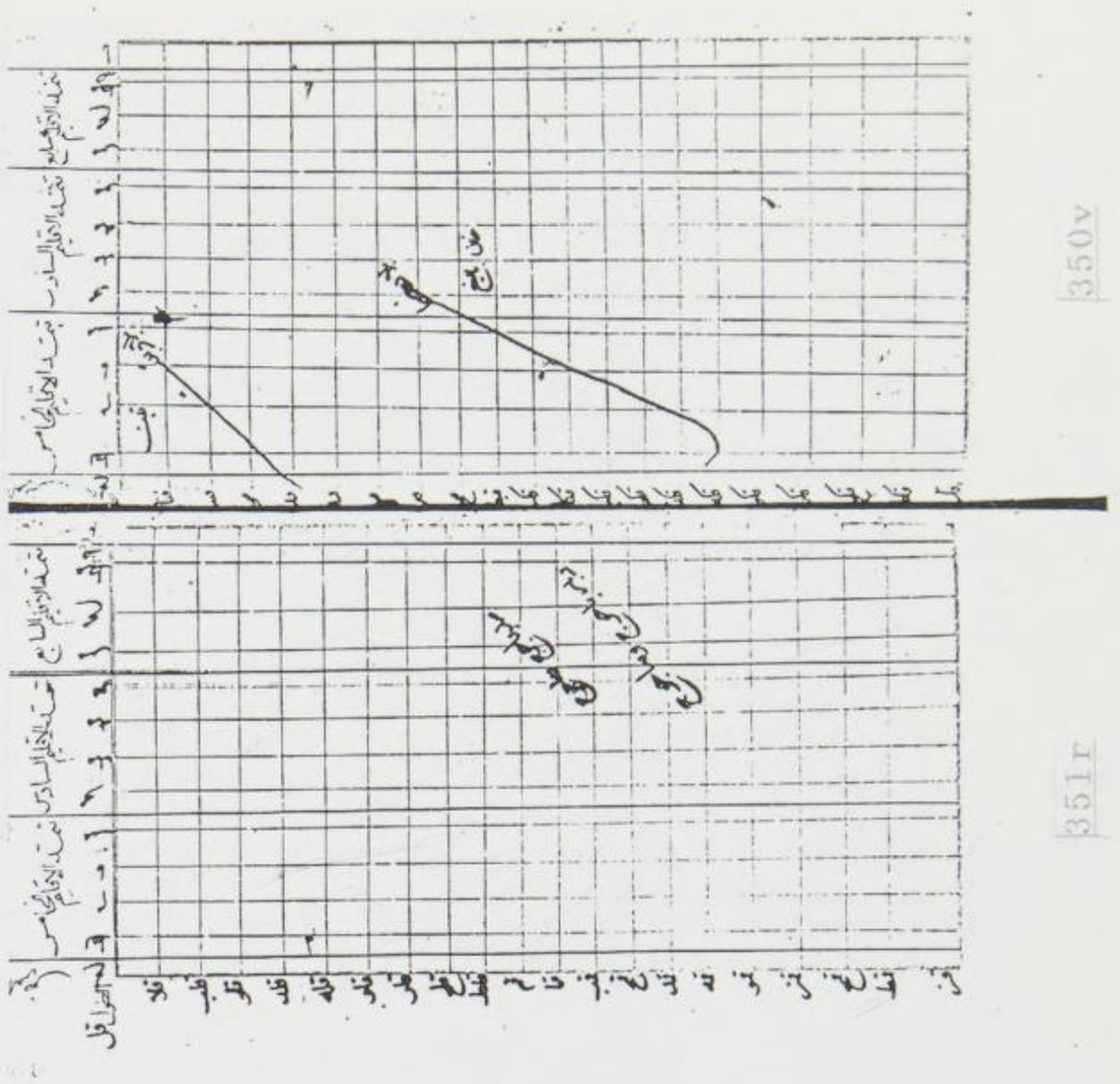




left is Arab Tripoli. Below, line by line, are: Talnees; Ein-ul-Shams; Alexandria, Fustat; Qutum; ?, Cairo; Qulzum; ?Mountains, Tabas? or Tayas? (Tyre?); Baitul Muqaddas (Jerusalem), Eiqlam (Beirut?); Amaleh; ?, Tabarieh, Sea of Tibria; Masbaseh (right of sea), Damascus, Basri.

f. 345v. The two rivers are the Euphrates (above) and the Dajleh (Tigris). Line by line are the following: Arin, ?, ?, Baalbank; Al Multan, Multabeh, ?, ?; Samitheh, Halab (Aleppo), Syria (diagonally); Surooj; Mardeen, ?, ?; ?, Hasn, Kaif, Naseen; Arzenjan, Sanjar, ?; Arjis Anmar, Mosul; Takrib; Salmas and Armieh, Samerah, ?.

f. 346r. The three diagonal names are: above, Desert; centre, Seistan region; below, Afghanistan. Line by line are the following towns: Marinan; Kharazm province (vertically in margin), Dehestan, Sabzavar, Peerchan, Lar; Nagshapur, Holy Mashad, ?, Tabas Kilpak, Kerman; ?, ?, Turbat, Jiruft Harat; Sarakhs, ?, Jaam Herat, Esterar; ?; Mardvard, ?, ?, Qasdar; Montakhab, Hoorkham, Arjistan, Kamran; Madbab, Ghoor, Kyj; ?, Qandahar and Bast; Balkh; Shadman fort, Khaitan, Bamian, Ghazneh; Kunduz, Kabul, Mansooreh; Badakhshan, Bangash, Bekr; Serhad; Black Shapout?, Peshavar; Multan; Kashmir; Jammu, Lahore.

f. 346v. The two rivers are the Jamna and the Ganga. Between them is the Miyam Doab. The diagonal name at top right is Qalb region. Between the two ranges of mountains is written Siwalik range. Above the Jamna above are Sirhind and Dehli; and below is Badaon. Above the Ganga is Qannauj, and below are Sambhal above and Bahraich below. Below on the right is Assam, and ? on the left.

f. 347r. Blank.

f. 347v. Chin and Mahachin.

f. 348r. Pages of the fifth, sixth and seventh climes begin with Farang (Europe) beside the Maghreb Sea.

f. 348v. Andalusia above, Frank Country written diagonally.

f. 349r. On the right is the Trebizond (Black) Sea and on the left the Sea of Rum, with the region of Greece. Between is the country of Rum (Turkey) and Istanbul. The semi-circle is called the Gulf of Alexander (Bosphorus). On the left of it is Greater Rum, with Lesser Armenia below it. The five towns are Sagh char (on the right), Konia, Aqra, Ankorieh (Ankara?), and Niki-shahr.

f. 349v. The diagonal region names on this page are, from the top: Daneshmandieh, Charkas, Rum, Bashar, Safalan and Qilchaq Plains. At bottom left is the Sea of Tabaristan or Mazandram. Line by line, right to left, are the following towns: Farashahr, Qaisarieh; Savas; Qaliqah; Amasieh, Markala; Arzenian; Arzan-ul-Rum Akhlat; Shaikie; Fars, Nahjavan; Taleen, ?, Baroo, Faramagh; Alaan, Tafan, ?; ?; Rudank, ?, ?, ?; ?, Bakubeh; (below the rivers) Saraye Koya; ?Mali (written upside down); Kimaak, Safain.

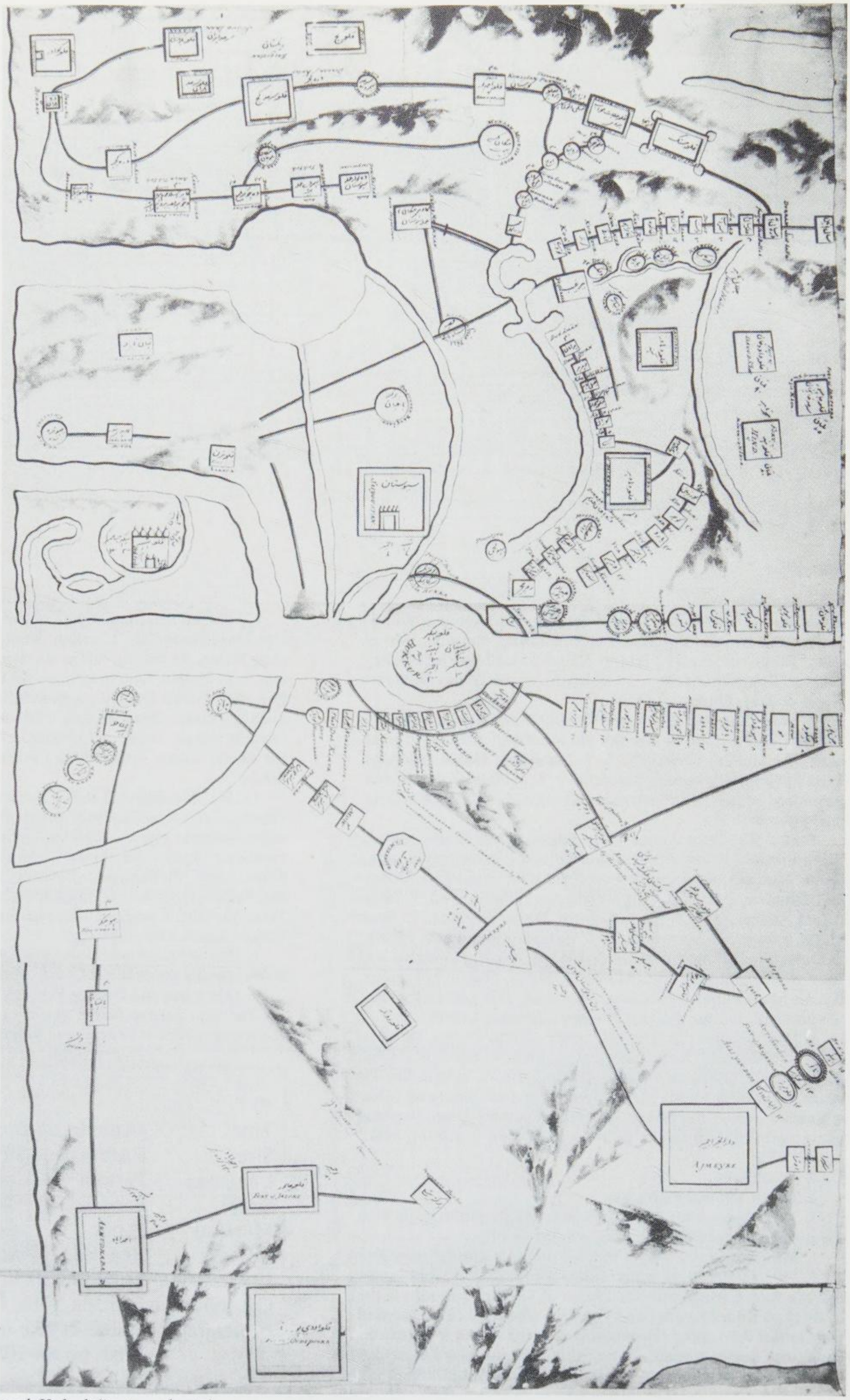
f. 350r. The diagonal region names are, from the top: Desert Qipchaq Jurjaniya, Turkistan, Mughulistan, and vertically at right edge, Qarqeed region. Line by line are the following: Bulghar; Faradeh; Urganj; Kat Hazar Asp; Bukhara; Salanka, Chakl, Syran, Jand, Muntakhab or Panjshir; Taraz, Tuzaq, Utrar, Banakat, Samarqand; Farkhar, Tashkant, Khujand; Aslagh; Ush Andar Jaan; Yarkant; Kashghar; Klooran, Balasaghoon, Khotan; Balas Baligh; Karakoram, Almaligh.

f. 350v. At the top left corner is Tibet, with Tibet Region just below. Across the centre is Cathay, with the town of Khan Baligh.

f. 351r. Land and Dam of Yajuj and Majuj (Gog and Magog).

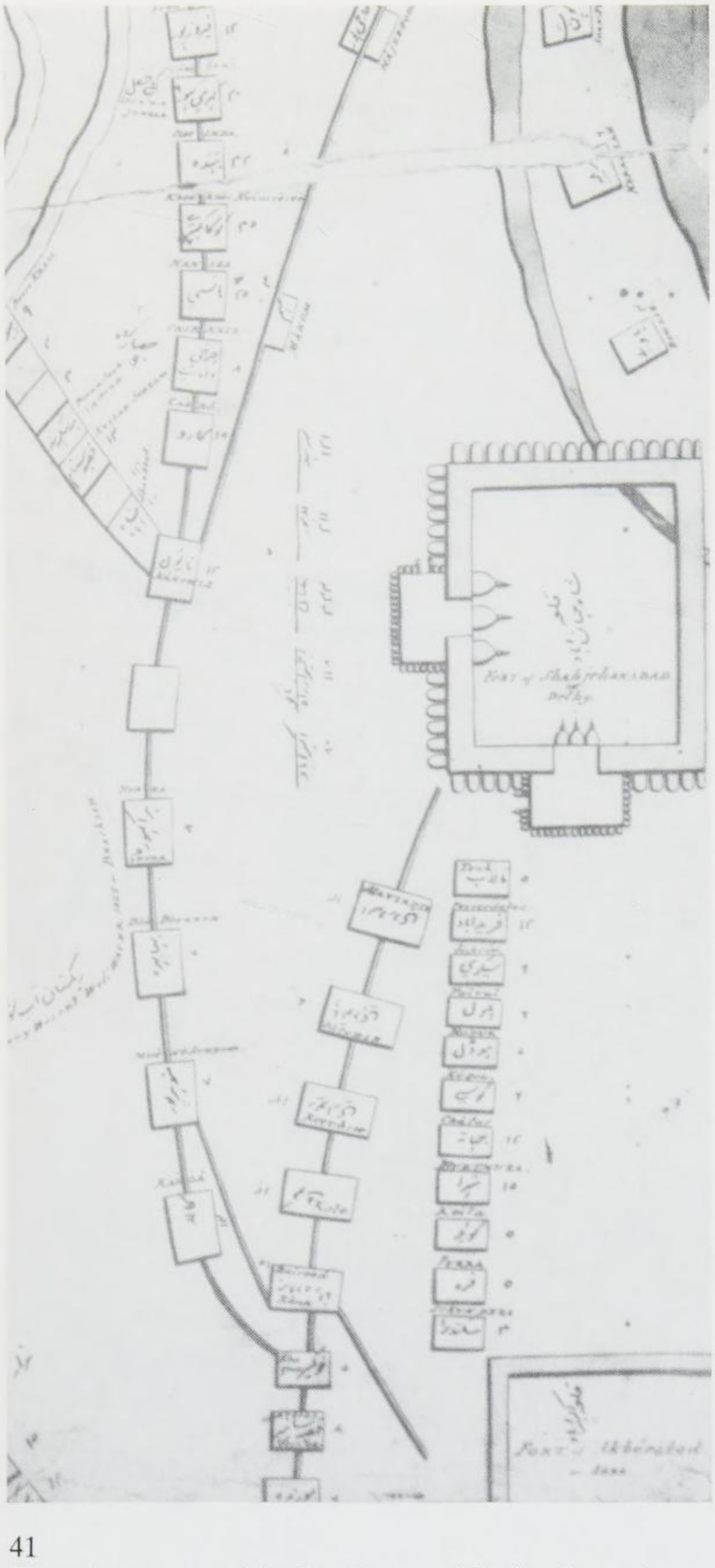
The next page is blank, and then come alphabetical lists of the towns, with the latitude and longitude of each.

40	
Title	[Atlas in *Shahid-i-Sadiq*]
Size	Each page c.17 x 30 cm
Language	Persian
Script	Persian
Material	Paper
Colours	Red sea, black
Location	London: British Library, OMPB
Cat. no.	Egerton 1016, ff. 335a to 351a
Bibliography	Habib in *The Indian Archives*, 1980, pp.88–105



41. North-west India and Kabul (in two sheets).

Historical Maps
FOLIO No. 97
SHEET No. 13
DESTROYED IN THE ORIGINAL



41
There is no record in the Survey of India about the original map of northern India, from which this is a copy. It is on paper bearing the watermark of J. Whatman without date, which was first in use in 1792. Since stocks of paper that reached India were consumed within a very short time, this copy was almost certainly made before 1795, according to R. H. Phillimore. The original was obviously in poor condition, since so many areas were already destroyed.

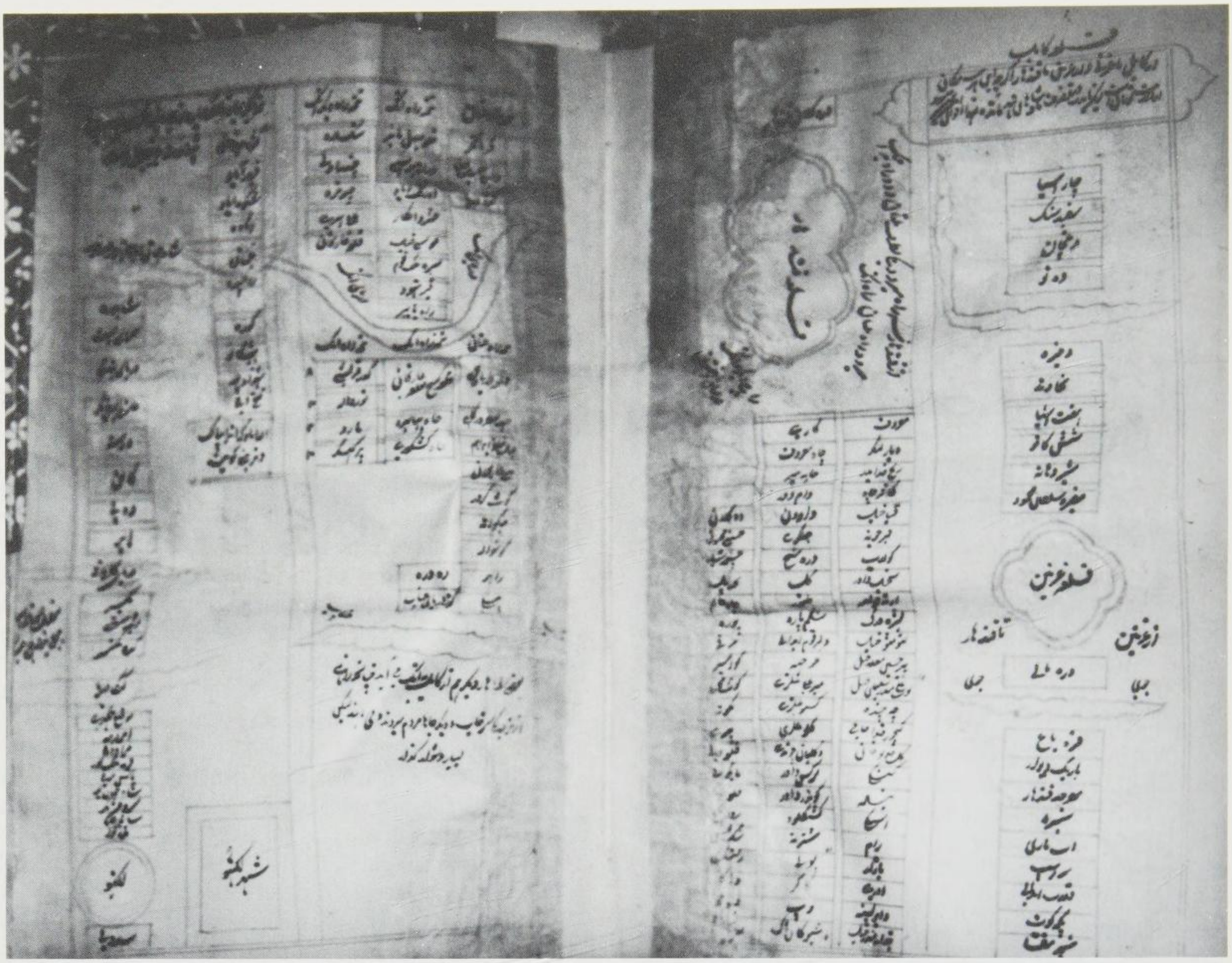
41	
Title	[North-west India and Kabul]
Size	Two sheets, 49 x 79 cm and 60 x 79 cm
Language	Persian
Script	Persian
Material	Paper
Location	New Delhi: National Archives
Cat. no.	MRIO, 97 (10,11)
Bibliography	Phillimore in *Imago Mundi*, 1952, pp.111–14

From internal evidence, the map was probably drawn between 1650, since it shows the new capital of Shahjahanabad, and 1730, before the invasion of Nadir Shah.

Phillimore described it thus: 'It stretches from the Jumna River on the east to include the Helmund on the west; from Kashmir on the north to the mouths of the Indus on the south. It shows the main rivers without any attempt at exactness, but in general correct relation to the important cities. It shows the great cities and towns of the Punjab, Rajputana, Sind, and Afghanistan, greatly distorted in geographical position. It records the stages and distances between these towns, the crossings of the great rivers, and the main passes through the border hills; and it gives notes on the nature of the country that would be of the greatest value to a military commander. A truly wonderful geographical map.'

James Rennell made use of an Indian map of Punjab when he was compiling his large map of India in 1782, but it seems certain that he did not know of this map, and must have had another in his possession or available for study. Two large maps of this area are thus on record, pointing to their regular use at that time, and the possible number there must have been.

There is little regard for scale or projection in the map, but it is an advanced attempt to fit the popular itineraries into a cartographic frame. The route from Multan (the fortified town at the lower right corner of the rectangular missing portion), through Lahore (on the right), down to the bottom corner to Kunnal (= Karnal) on the Ali Mardan Khan canal, and then along the bottom between the canal and the Jumna to Shahjahanabad and on to Agra, forms roughly three sides of a rectangle, and is not too far from correct. But the distance between Multan and Lahore, and Lahore and Karnal, each about 200 km, is shown as hardly more than Karnal to Delhi, about 80 km. And the sharp angle at Karnal is made to suit the draftsman and his paper, not the actual road.



42

Title	[Maps in *Chahar Gulshan*]
Size	Each page c.17.5 x 26.5 cm
Language	Persian
Script	Persian
Material	Paper
Colours	Black and red
Location	Aligarh: Maulana Azad Library; New Delhi: National Museum; other copies are known
Cat. no.	Aligarh: Habibganj Collection 32/157
Bibliography	Sarcar, *India of Aurangzeb*

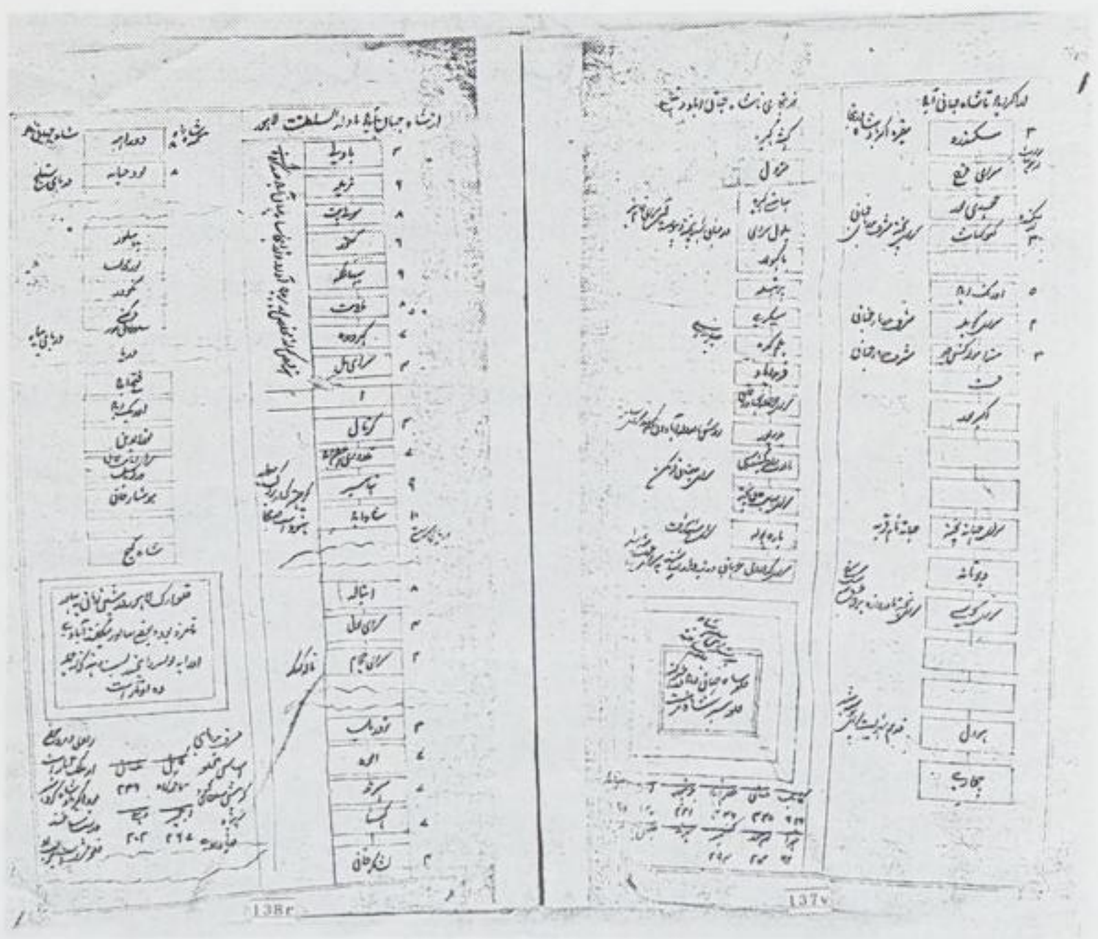
42

The Chahar Gulshan, or 'Four Gardens', is a condensed history of India, including descriptions and statistics for the several provinces, and lives of holy men. It was written in 1760 A.D. by Rai Chatar Man Kayath and arranged and edited by his grandson in 1789. The author was in the service of Ghaziu-d-din Khan, wazir of the Mughal empire. It was also known as 'Akhbaru-l Nawadir', Accounts of Rare Things.

The topographical notices were mainly taken from the *A'in-i Akbari*, with additional information from other works. Many of the itineraries given for north India could also be traced on the previous map [41].

This is the only manuscript set of itineraries known to include maps of any sort. They are crude, with no attempt at direction, like the strip maps common in Europe a century before, and in two columns to a page. Towns are shown in circles or squares, according to their size, and hills are shown across the route; but no actual road is marked, only the places as they occur.

A fuller description of two of the pages will be illustrative of the type of information that the maps contain. On the right above is f. 140 v. At the top a note states that although these three cities, Ghazni,



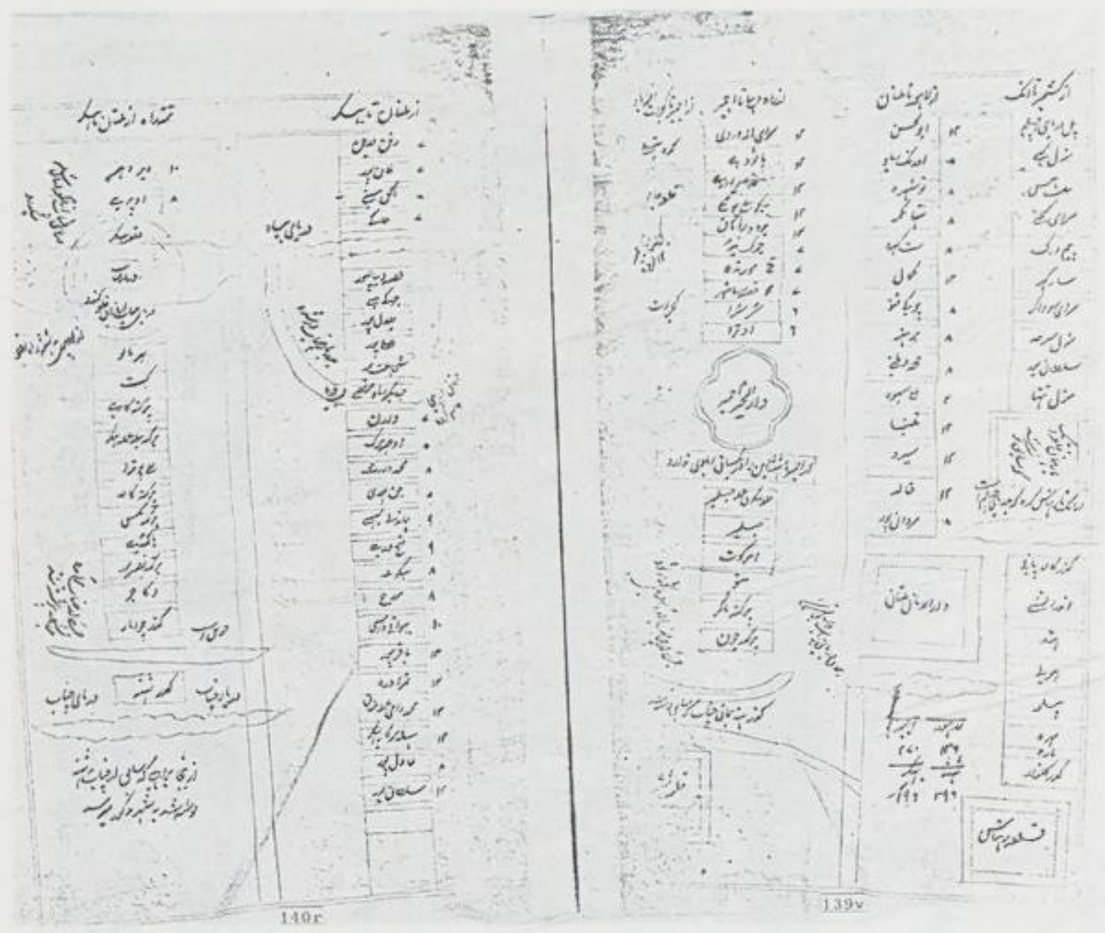
Qandahar and ? are within Turan, they pay taxes to the kings of India. The first four boxes contain the names of Charasya, Safed Sang, ?, and Dahnau. Across an unnamed river are ?, Nihawand, Haft Aspa, Shash Kanu, ?, the tomb of Sultan Mahmud, and, in the shield-shape, the Fort of Ghazni. Below is the title of the next part of the route, From Ghazni to Qandar. The Bani Pass is in the first rectangle. Below are Qarabagh, Bareek Diwar, the boundary post of Qandahar District, Sabza, Ab bari, ?, Qalat Abdali, Pakka Kot, and Shahar Maqsha at the bottom.

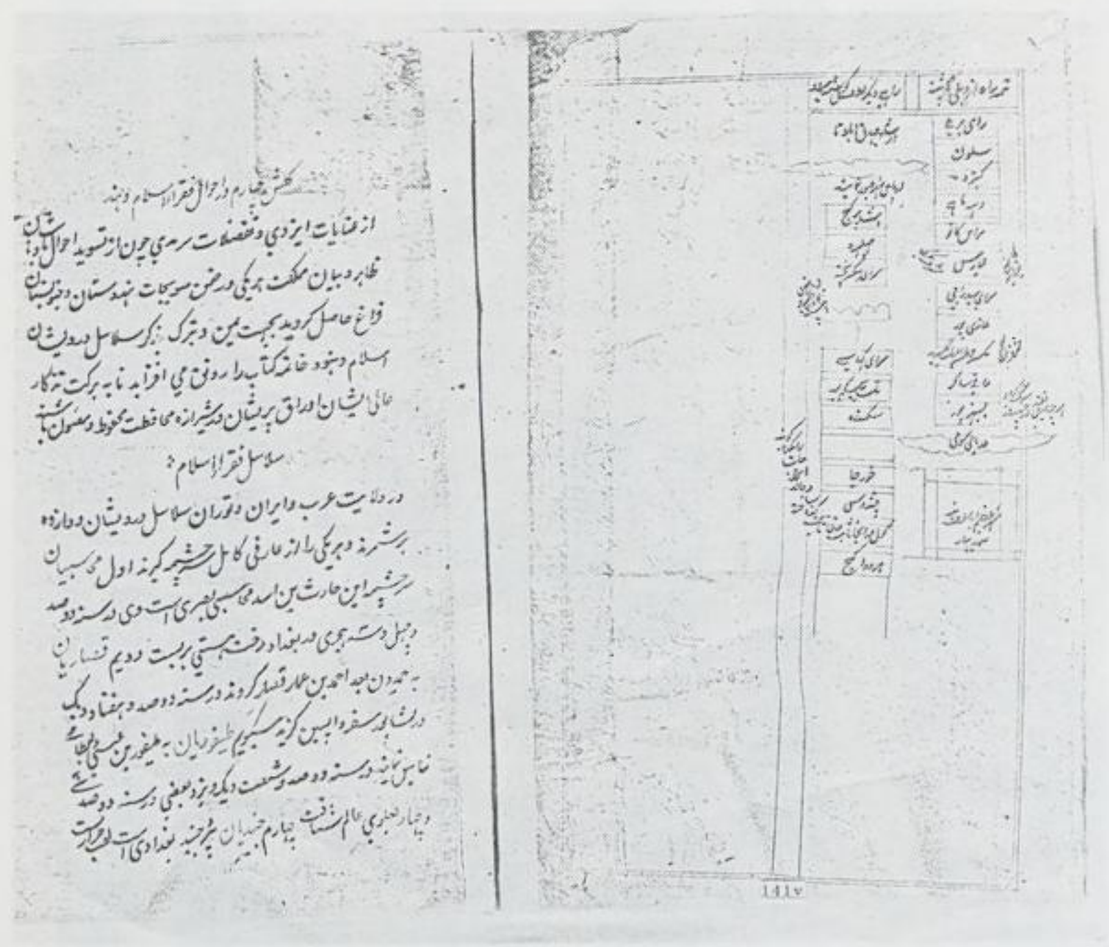
At the top of the left hand column on this folio is the Old Pass to Qandahar, with the large shape of Qandahar itself below. Written vertically beside it is the note that here the road forks, one going to Multan and the other to Attock, and it is the one going to Attock through Kohistan which follows below in three narrow columns. The route continues in the right hand column of the next page, f. 141r, with three routes squeezed into the column, the two on the left showing the road to Attock, and that on the right beginning the route to Multan. The looped river is the Attock river, and the straight one lower down is the Chenab. Below, a note states that there are other routes from Kabul to Attock, such as the one via Surkhab, but it is a very difficult route. On the left hand column of this page starts the route from Agra to Allahabad, and on to Patna, with only the part up to Allahabad, also known as Prayag and Tribeni, shown here. Tucked into the far left column is the heading: If one wishes to go from Delhi to Patna via Bareilly, the route is as follows, and it shows the towns up to Lucknow, which is in the rectangle at the bottom.

This brief translation shows that the maps were far from easy to follow, and were really little more than tables abstracted from the textual itineraries.

f. 136r. The maps start on f. 136r, with Shahrahs, the Royal Highway. At the top of the right hand column is Bijapur Fort. The next double-lined rectangle is Ahmednagar Fort, with Orchha below it, on the banks of the Banganga river. At the head of the next column, in a circle, is Golconda, and the Tapti river is at the foot. It is repeated at the start of the next column on the following page.

ff. 136v–137r continue the itinerary of the royal route to Sironj. At the top of the right hand column (of f. 136v on the right) is Burhanpur. Top of the next column is City of Ujjain. On the left hand page, Serai Baloch is at the top, with City of Gwalior halfway down. Agra Fort is the large rectangle at the bottom of the left column, with the route passing through





Dholpur and Fatehabad.

f. 137v on the right shows the route from Akbarabad (Agra) to Shahjahanabad (Delhi). Distances are marked in karohs (a variant of cos), and at the bottom right column is a table of distances from Delhi: Kabul 616, Multan 447, Patna 436, Jaunpur 221, Mathura 62.

f. 138r on the left shows the route from Delhi to Lahore, which is the big rectangle at lower left.

f. 138v on the left continues the route from Lahore on to Attock Fort, through Peshawar to Jalalabad. In the right hand column the Chenab and Jhelum rivers are named within the wavy lines.

f. 139r continues the route across the Surkhab river at the top of the right hand column to the Fort of Kabul at the foot of it. The left hand column states at the top that from Gujrat on the Chenab river to Kashmir and from Delhi to Lahore, the route has already been described. Here it shows the route from Saifabad through Nuh, Aliabad and Baramula to the Fort of Kashmir.

f. 139v is divided into four columns with the route from Kashmir to Attock, crossing the Jhelum river halfway down the first column, which ends at Rohtas Fort. In the next column Multan is below the middle, with a distance table giving Lahore 136, Patna 296, Bhakkar 196 and Ajmer 470. The second column contains the route from Delhi to Ajmer, the shield-shape in the middle, and on to Ahmedabad in the last column.

f. 140r shows Multan to Bhakkar across first the Beas river, and then a loop of the Chenab.

ff. 140v and 141r are described on page 126.

f. 141v, with two columns on the right hand half, shows in one the route from Delhi to Patna, through Rai Bareli, Salon, Kara, Banaras, Ghazipur, across the Som river to the city of Azimabad (Patna). In the second column is the road from Delhi to Aligarh.

43.1 and 43.2	
Title	[Shahjahanabad to Kandahar]
Size	.1 approx. 25 x 2000 cm; .2 approx. 20 x 1200 cm
Language	Persian
Script	Persian
Material	Paper
Location	London: India Office Library
Cat. no.	.1 Pers. Mss. 4725; .2 Pers. Mss. 4380
Bibliography	—

43.1 and 43.2

These two scroll maps depict the road from Kandahar to Delhi. They are long and narrow, and have no sense of direction, nor do they maintain a consistent scale. The larger one, 43.1, is more decorative and gives more details of villages on the way, and those some distance from the route. The other, 43.2, has more textual description of sources and courses of the rivers, and is more neatly drawn. It is probable that the larger was drawn first, and that the other is a fair copy of it.

On the back of 43.1 is a note that the map was made by Maulvi Qulam Qadir, who was in Kandahar with Mountstuart Elphinstone in 1814. It appears, however, that they are from an earlier period, from internal evidence, but may have been presented to Elphinstone at Kandahar, perhaps by Qulam Qadir. At the town of Patiala there is a note that it is the residence of Raja Amar Singh. The fort had been built by Amar Singh's predecessor, Ala Singh, the first raja (died 1765), and if it were to retain a name long after the death of the holder, one would expect it to be Ala Singh who was remembered. This argues in favour of the map being prepared while Amar Singh actually had his residence in Patiala, and not many years after his death. There is mention too of Burhan-ul-mulk, the first Nawab of Oudh, who lived in the first half of the 18th century.

The maps cannot have been made earlier than the 1760s, because they mention so many serais that have fallen into ruin, and this must have happened during the turbulent years of the 60s. So one or both of them may well have been drawn between 1770 and 1780.

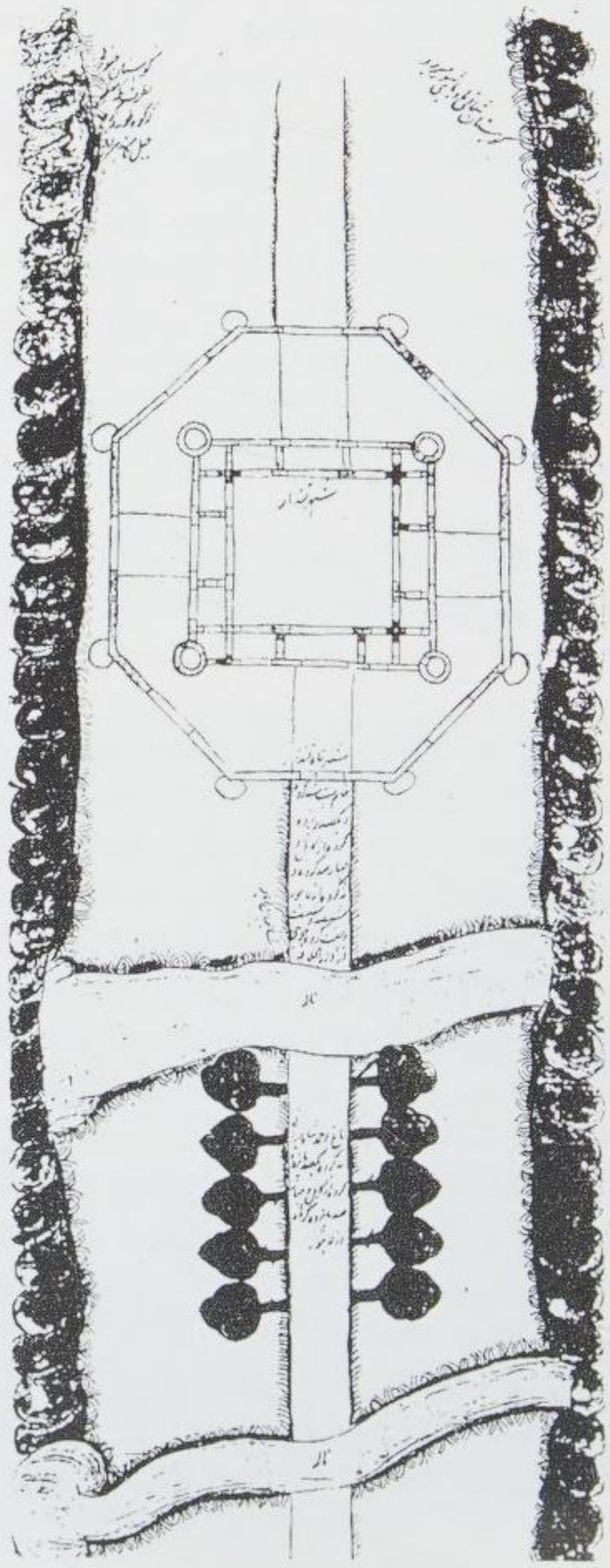
The larger of the two maps, 43.1, has been reproduced in full, though much reduced in size. In most cases the textual inscriptions in this map are copied in the smaller one, except that there is often a discrepancy in the distances that have been stated from places on the route to the next large town or to nearby towns off the route. These distances have not been studied to see which are correct, nor have they been compared with modern distances.

The map begins at Qandhar, Kandahar, though the road is shown coming from beyond the town. The inscriptions at the beginning on either side of the road state that the southern mountains stretch to Mecca, Tur and Jabal, while the northern mountains stretch to Darya-i-Shur. The inscription below the town reads that the protecting wall around the city is not of bricks and mortar [but must be of mud]. It is 118 karoh (cos) from Kabul, 409 from Lahore, and 667 from the capital of Shahjahanabad. The trees on either side of the road mark the garden of Ahmed Shah Durrani.

Page 95 a. The four villages on this strip are: Mehmandi Juratabad, the former town of Safa, Halat fort, and Mukarrar fort, where the minarets can be seen from all sides. The tree halfway down on the right marks Takia Toot, the residence of Ahmed Shah Durrani. Above it is the well he made. The circle of trees lower down are around the spring of Mulla Shadi. At the bottom is Qara Bagh. The two canals that were crossed on the way are irrigation canals.

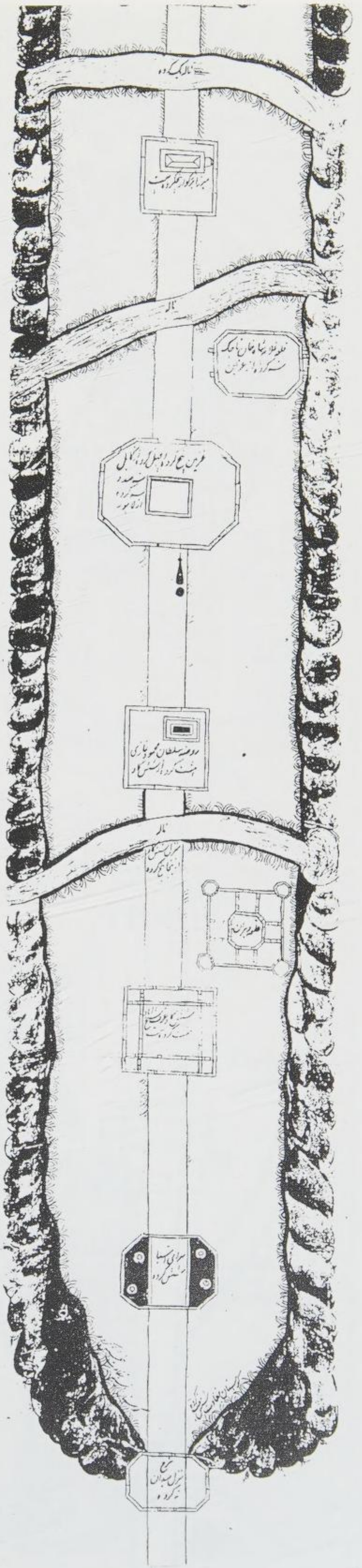
Page 95 b. After crossing two more canals, and passing the tomb of Mirza Buzurgvar and the fort of Ghulam Shah Khan Tanik, the town of Ghazni is reached, 45 cos from Kabul and 307 from Lahore. The tomb of Sultan Mahmud Ghazni is on the bank of the next canal, opposite a ruined fort. Next comes Shesh Gav Urf Shaikhabad. The last town before the end of the long narrow valley that the road has been following is Serai-i Asiya, Inn of the Windmill. Here the mountains are 56 cos from the road, and the range is 67 cos in length. At the pass is the tower of Manzil Maidan.

Page 95 c. Qazi's fort is at the foot of the hills, and to the left

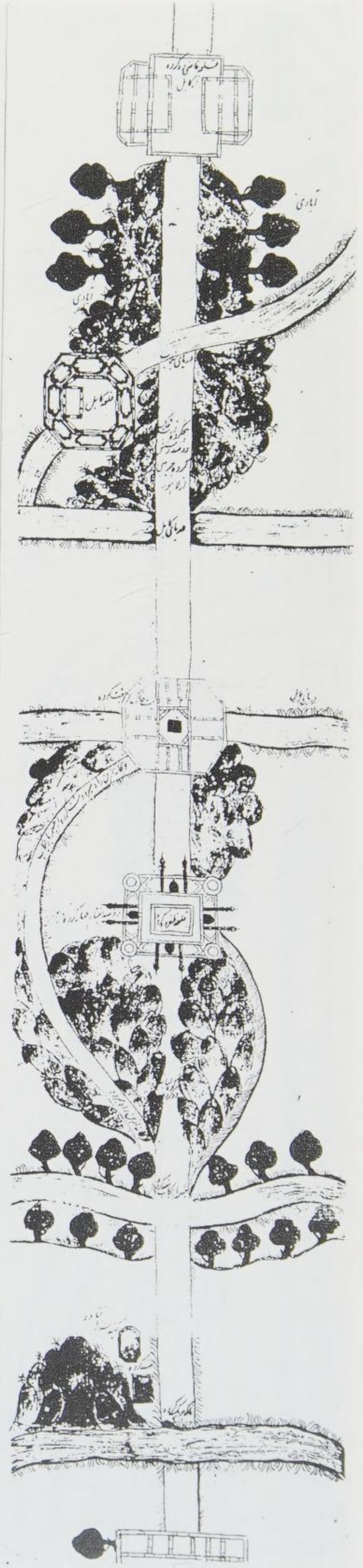


The start of 43.1, at Kandahar.

a



b



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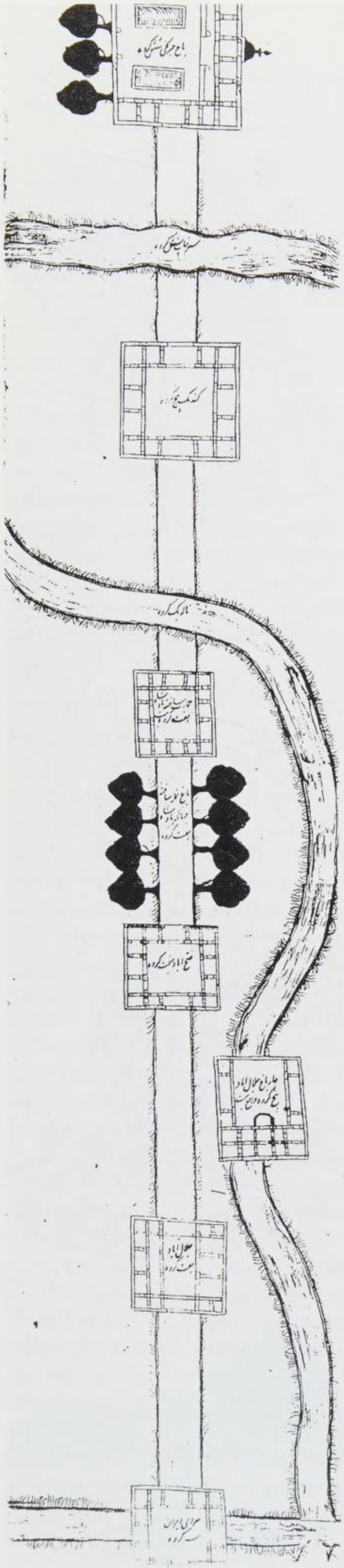
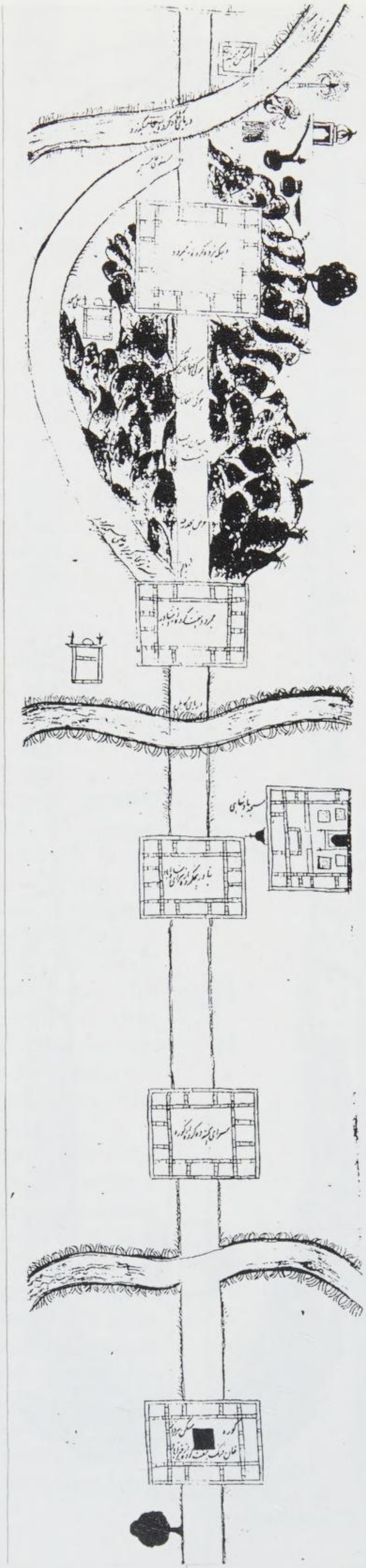
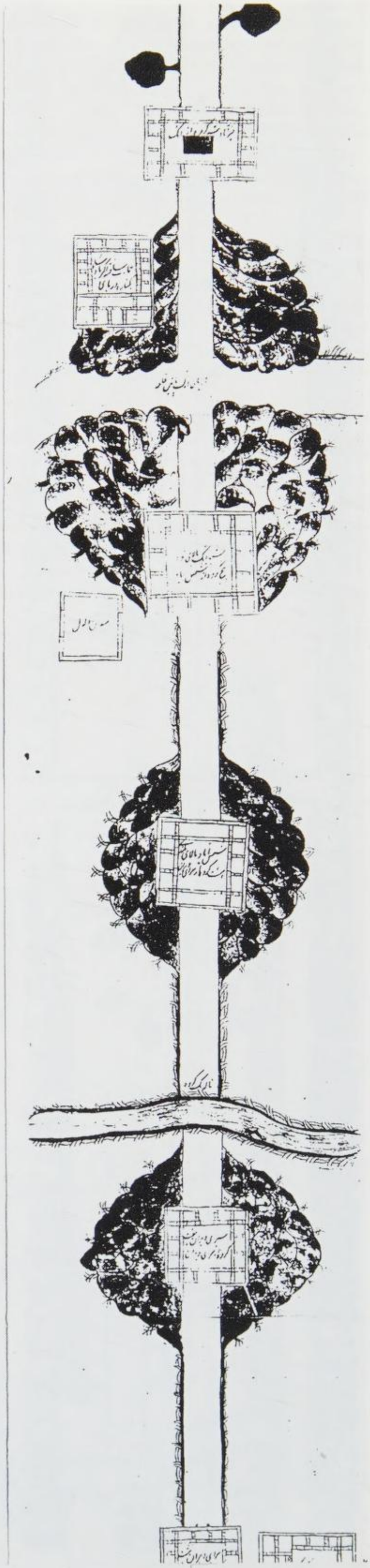
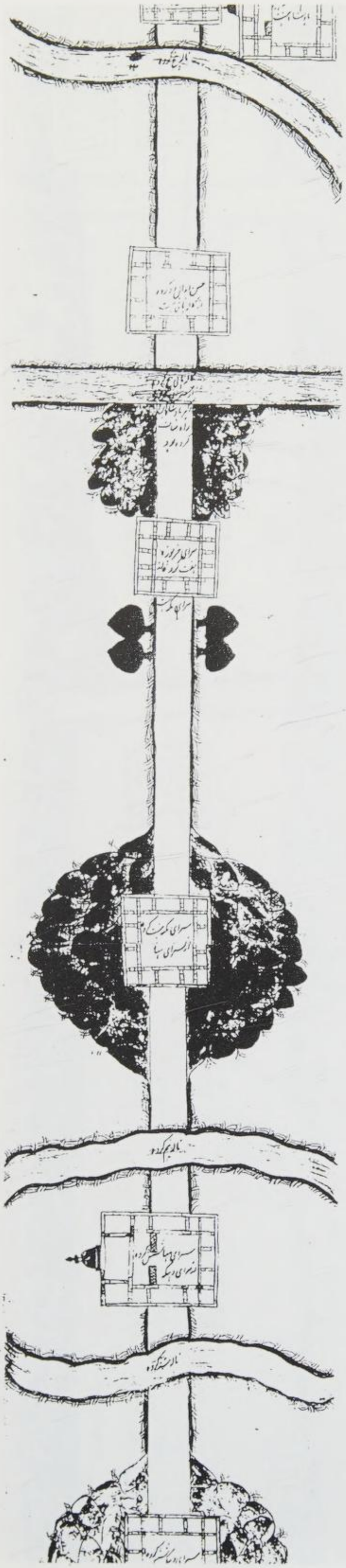
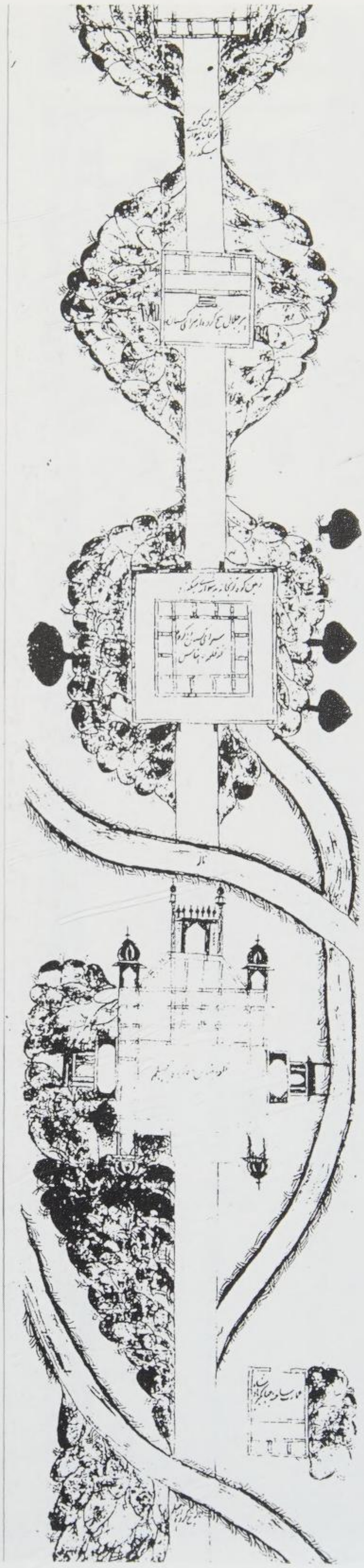








a.



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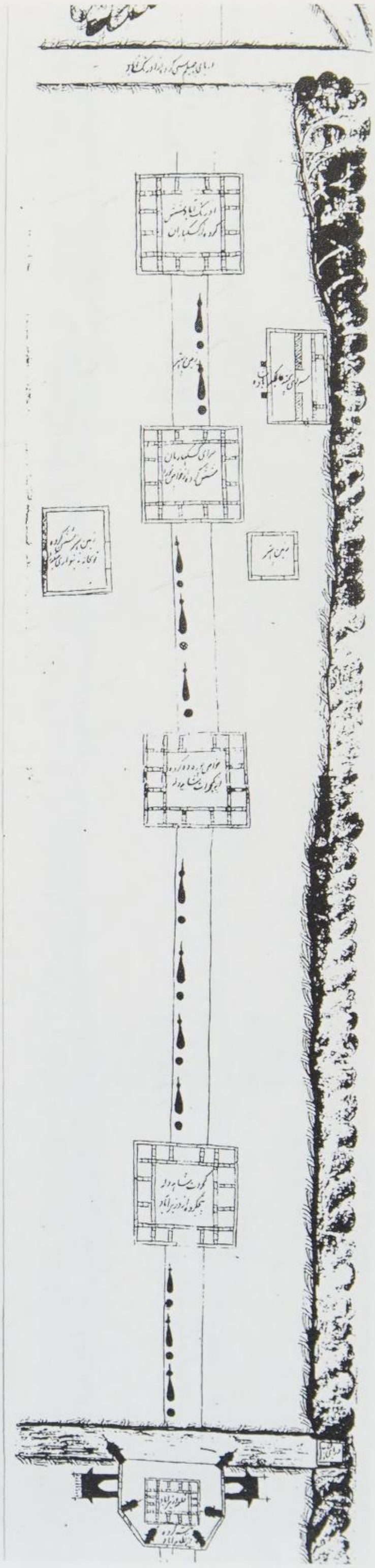

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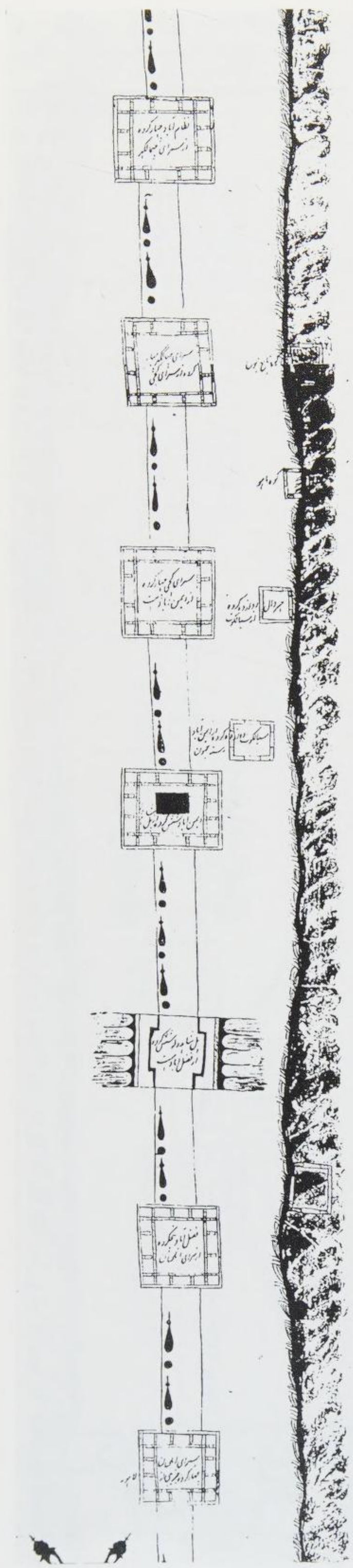
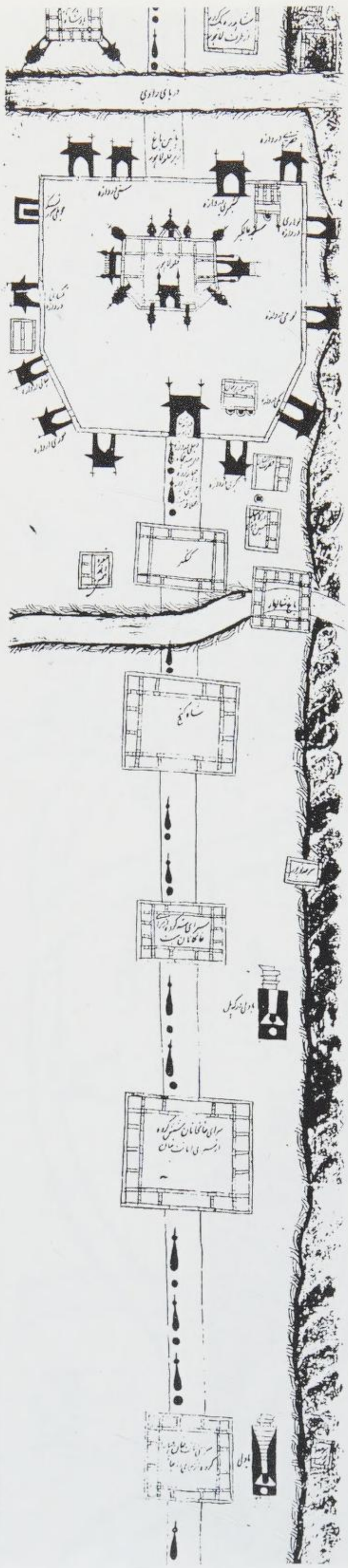


a.



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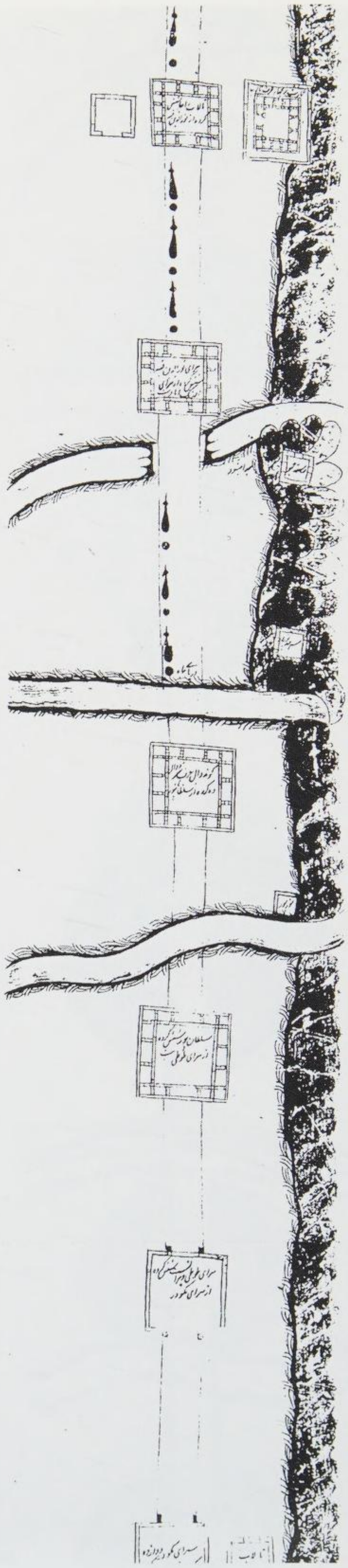

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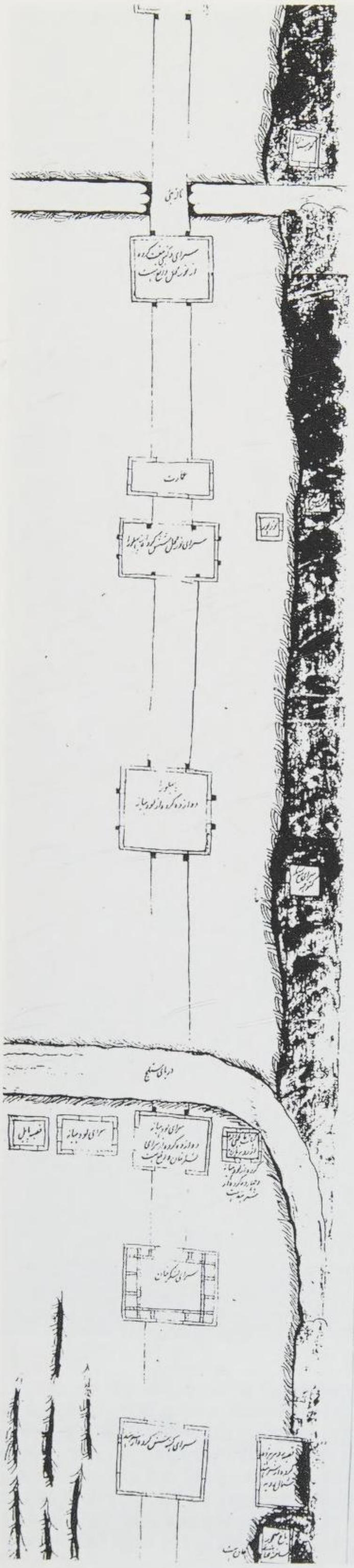
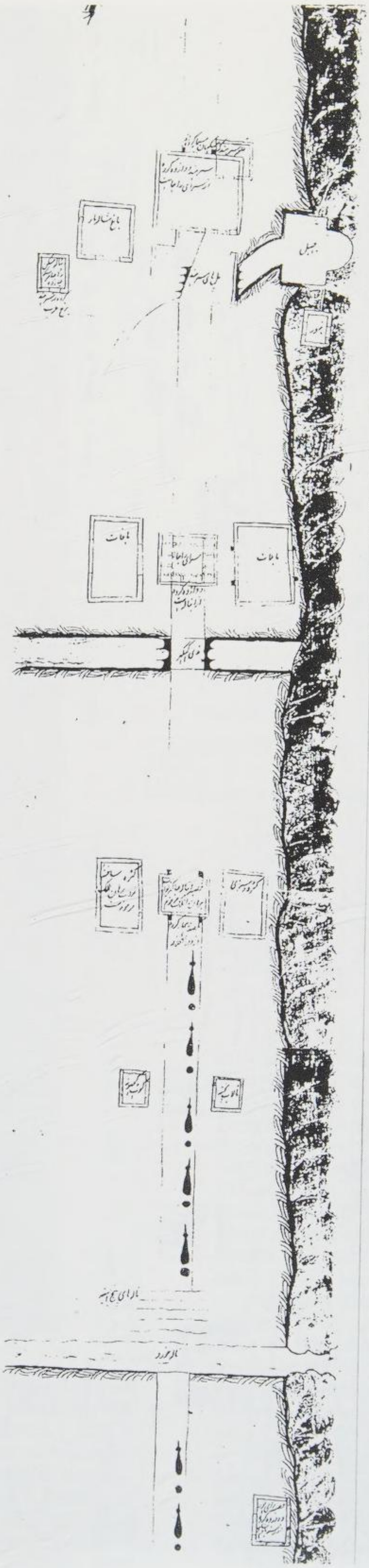
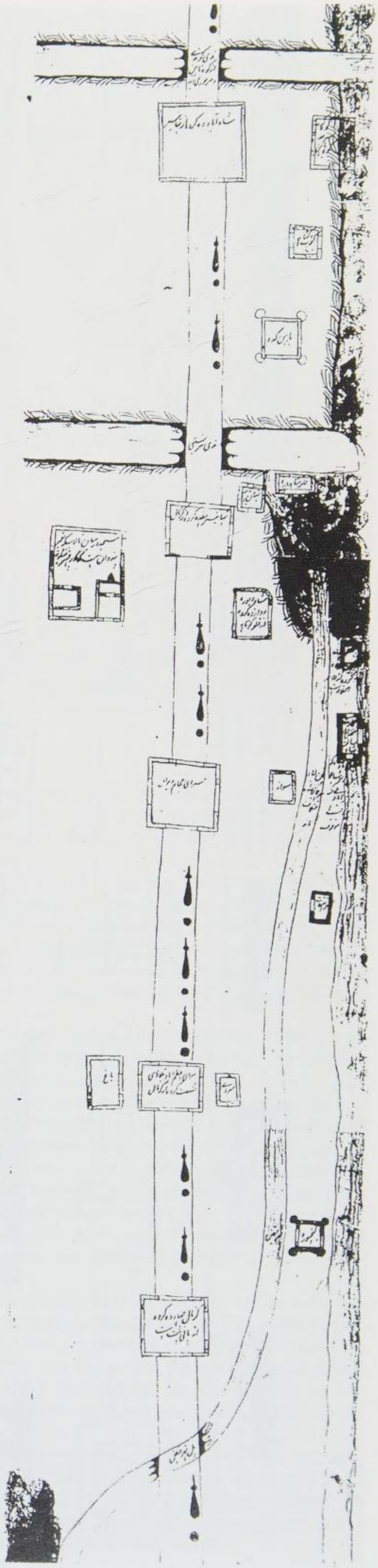


a.



b.



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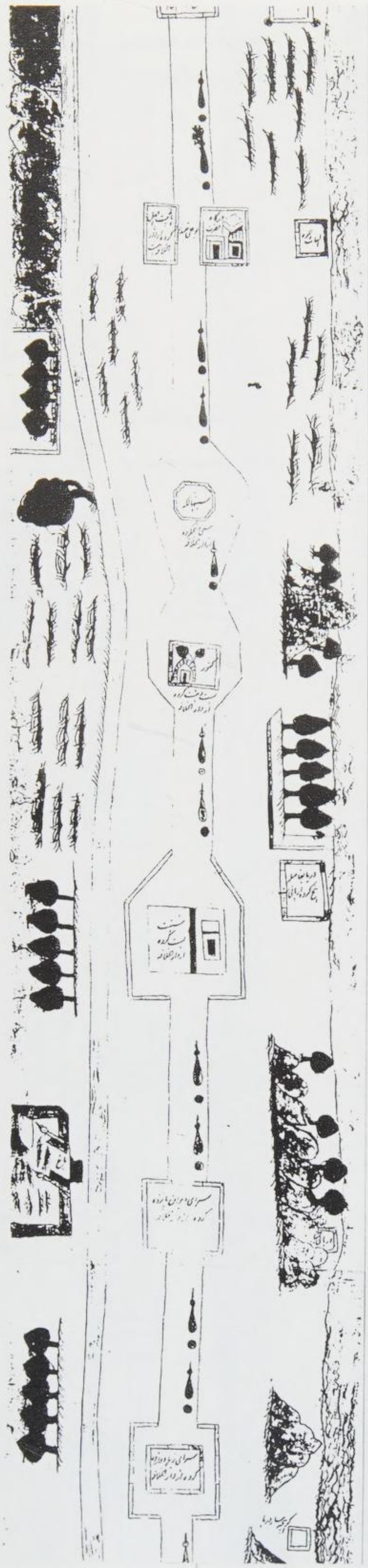

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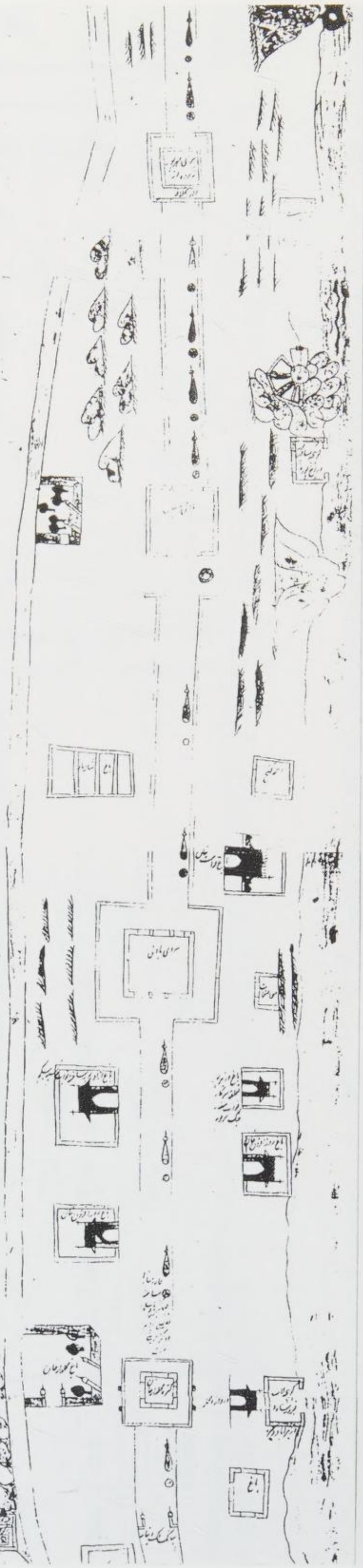
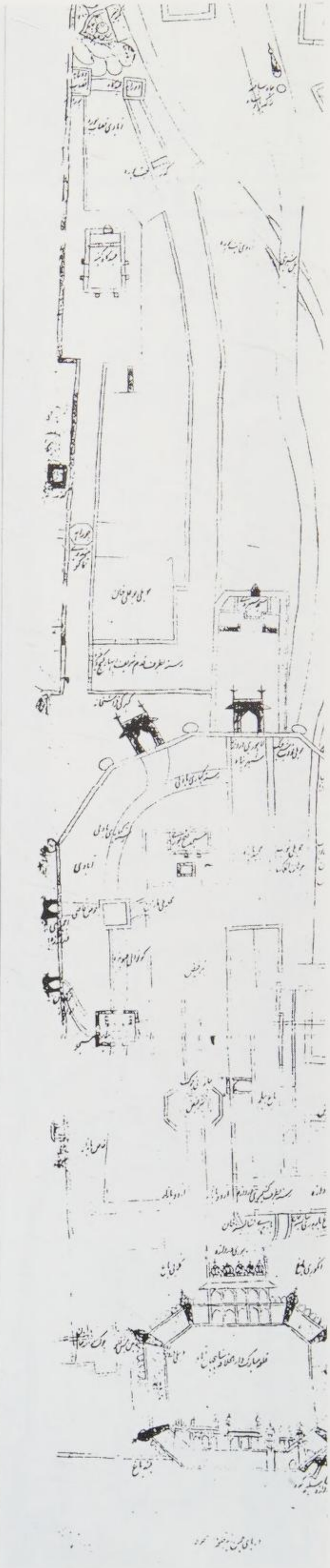
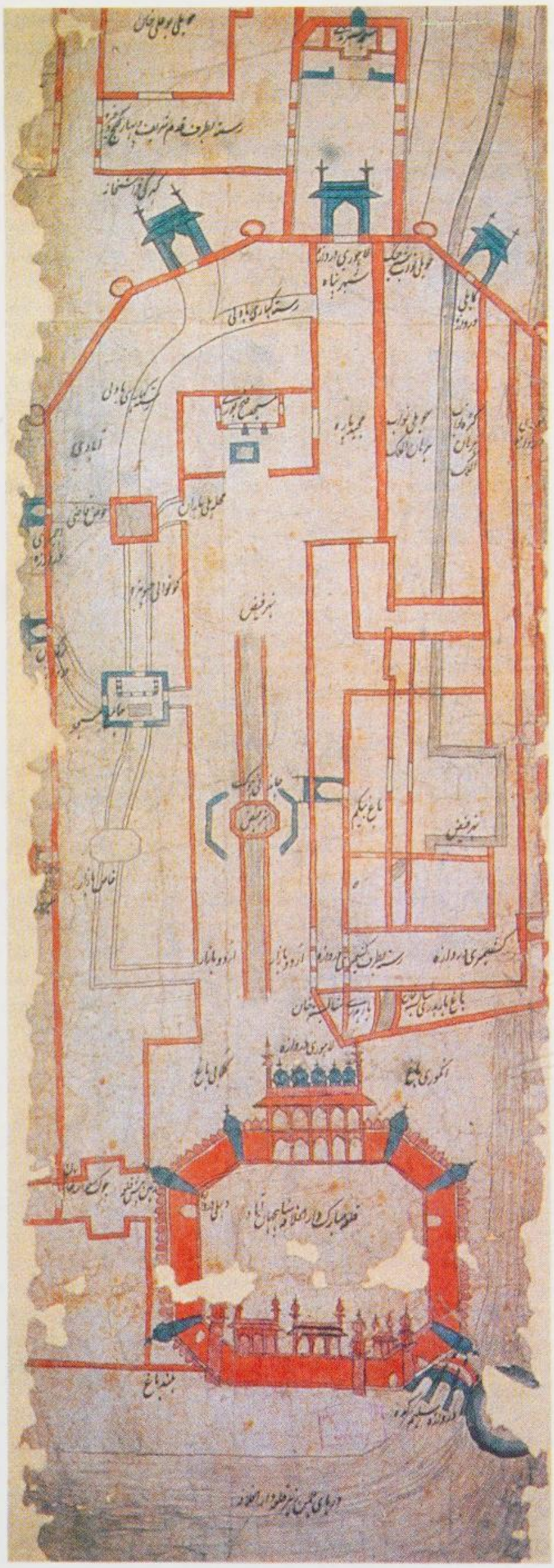
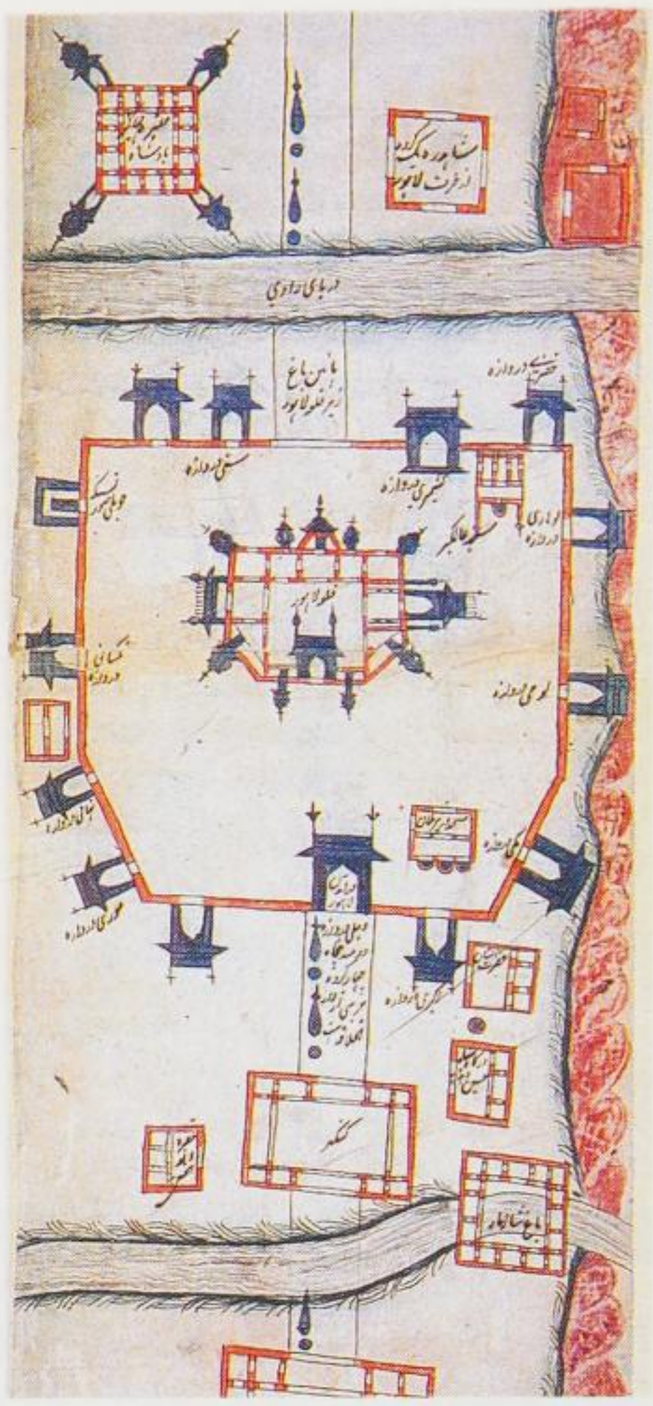


b



c





43.1a. Shahjahanabad.
43.1b. The Fort of Lahore. >

of them, on the Nilab river is Kabul fort. It is 206 jeribi karoh from Lahore. This gives a definition of the type of cos that was in use here, since the length of the cos varied in different parts of the country. The jeribi karoh or cos was measured with a chain, compared to one that was paced out, and was therefore more accurate. In this part of the empire it equalled about 1.6 miles. At the foot of the hills was a bridge over the Kabul river, and it had to be crossed again at But Khak before the climb to Qila [fort of] Zafar. The circular road on the left was through Tupkhana, presumably avoiding the steepest gradient. After passing the Lataband mountain the road crossed a stream, the Barik ab, with trees on either side of it. Near the hill at the bottom was a dam which has fallen.

Page 96 a. Jarkoli garden is at the top of this strip, with the Soorkh Ab, red river, dividing it from the village of Kundek. The curving stream is the Kabul river, flowing past a building constructed by the king (?), the Namleh garden made by Jehangir, and Fatehabad. The garden of Jalalabad is on the river, but the town itself is on the road. On a stream at the bottom is an abandoned serai.

Page 96 b. Between the river and the road is the residence of Mahmand. There is no inscription to tell us who has been drawn sitting with his hookah under a palm tree, beside a shrine. Just across the river the road divides, with the level route on the left going past Ali Masjid. In the hills is Dah-keh, and just beyond is the border post of the Bangash Afghans. Khyber Pass is just before the town of Jamrud, where the road from Topkhana past Ali Masjid rejoins the main highway. After crossing the Kabul river again, we see the Badshah mosque on the right, but no mention which emperor is meant. It is at the town of Banadir. Next is Serai Pukhta, and lastly Kooreh, the residence of Sarfaraz Khan Khatak.

Page 96 c. The first town here is Khairabad. In the hills is a building [fort?] constructed by emperor Akbar. The Attock river splits the hills below the fort, and Attock city is on the other side, 'on top of the mountain'. On the left of the road is an enclosed swamp. On the next hill is Shamsabad, but the building on the last hill is an abandoned serai, as is the one at the bottom of the strip.

Page 97 a. On the right are Baths built by emperor Jehangir. On either side of the Kala Pani stream are Hasan Abdal and Serai Kharpouzeh. The road through the hills had been cleared by Akbar. On the next hill is Serai Takia, and between the canals is Serai Tanha. At the bottom is Serai Dah-keh.

Page 97 b. Between the two hills is a note that movement of

artillery is difficult here. On the first hill is Pir-Jalal, and on the next Kestan Serai. The fort with the large gateway is Rohtas, 10 cos from the Jhelum river. The building on the right was made by Jehangir.

Page 97 c. The Jhelum river heads this strip, and it is 30 cos from there to Aurangabad. Now the cos minars start. The first Mughal emperor, Babar, had written in his diary that he had ordered Chikmak Beg to measure the distance from Agra to Kabul, and at every nine cos he should raise a minar or turret, and at every ten cos there should be a yam, or post-house (Quoted in Nilsson, *The New Capitals*, p. 11). A note on the road states that it is easier going here, and certainly the road climbs through no more mountains. On the right is Alamgir Serai, but the road goes to Keskah'aryan Serai. On either side of the road is good land, but the passage is still rough for artillery. After passing Khavas Poureh and Gujrat (Shah Dooleh), we reach Wazirabad.

Page 98 a. The following places are on this strip: Nizamabad, Cheshmakghar serai, Ganji serai, Emanabad with Sialkot in the hills on the right, the bridge at Shah Douleh, Fazalabad, and Elchian serai. Here again the road has been measured by chain, jeribi.

Page 98 c. Jehangir's tomb and Shahdra are north of the Ravi river, and on the south bank is Lahore. It is approached through the Lower Garden, below the fort. On the left is the Sati gate, and on the right the Kashmir Gate. Anti-clockwise round the wall are the Haveli Surat Singh, the Taxali Gate, the Thali Gate, the Mori Gate, the Shah Alami Gate, the main gate of the fort — the Delhi Gate, the Akbari Gate, the Makki Gate, the Lohi Gate, the Lohari Gate, and the Khizri Gate. Beside it is the Alamgiri Mosque. In the centre is the fort of Lahore. Wazir Khan's mosque is at the lower right corner. Outside the wall is Hazrat al Shan, and below, Shah Hussain's Dargah. Lahore is 254 cos from Delhi. Ganghar is on the road, with Abul Hasan's tomb on the left and the Shalimar Gardens on the right. Across the river is Shah Ganj. In the hills is the border of Nurpur. Near a serai is a baoli, a step-well, very finely drawn, as is the one below after Serai Khan-i Khanan and Serai Amanat Khan. Here again is the border of Nurpur.

Page 98 c. At the top is the kings's tank, with buildings around the four sides of the baths on the right. There is a bridge over the river at Nur-ud-din Qasba, and here the road branches off to Jammu. There is another frontier post of Nurpur on the right, and then the Beah river. The following places named are: Goindwal, also known as Neruwal, Sultanpur, the ruined Tuti serai, and Nakodar serai.

Page 99 a. After the bridge over the canal is Dakhani serai, some buildings near Serai Nur Mahal, and then Phillaur. The serai of Fateh Singh Kanojia is in the hills on the right. The Sutlej river takes a turn, with Ludhiana on its further bank. On the left is the serai of Ludhiana, and Qasba Payak beyond it. On the right is Ghat Manchiwara. Below are Lashkar Khan serai and another one, now abandoned. Near the river is the small town of Ropar and beside that the Maikhor garden built by Fidai Khan.

Page 99 b. Sirhind Fort is next, on the corner of Sirhind town. The notice inside the fort states that it has been destroyed by the Sikhs. Ala Singh of Patiala was responsible for this, and it happened in 1762. The fort was never rebuilt, as the raja took most of the population off to Patiala, the town on the left beyond the Shalimar gardens, and now the residence of Raja Amar Singh. These notes seem to date the maps to the 1760s to 70s, and not the mid-19th century date that is sometimes given to them. Below Sirhind is a bridge, over water flowing from the lake on the right. Near it is Banur. There are more gardens on the banks of the Ghaghar river, either side of the king's serai. Ambala, coming next, is shown as an extensive place. In the centre is Ambala Qasba, jagir of the late Nawab Burhan-ul-Mulk [first nawab of Oudh], on the left are squares of houses built by the nawab, and on the right are more houses and serais. Map 43.2 mentions also the 'late' Safdar Jang as jagirdar of Ambala. He died in 1753. The cos minars are again seen beside the road here, and pass between Kot Kochhonah on the left and a masonry tank on the right. A five-channelled canal is shown next, and map 43.2 states that it is useful during the monsoon, and is always muddy and swampy. On the right at the bottom is Raipur.

Page 99 c. The river Kondi flows from Nahan and the Sirmur hills. South of it is Shahabad. On the right is Kohgarh, at the start of the Nahan ranges. Below are Kot Akata and Babhangarh, before the Sarsanbi river. On the other side of it is Shahdara fort and Nahan, with Thanesar astride the road. On the left is a mosque in the centre of a pool that was built by Hindus, the pool is also called Kur Chhatar. On the right is Shah Dhora, and at the foot of the hills are Muktesar, Khizrabad, Siwana and other villages. On the road is the abandoned Hajjam Serai, Inn of the Barbers. Next is Azamabad Qalavar, with a garden on the left and the serai on the right. The fort on the right is Kunjpura, and beside it flows the Faiz Canal [see map 44]. It crosses the road under a bridge south of Karnal.

Page 100 a. At the top is Serai Gharonda Pukhtah, with Kohat tank on the right. No mention is made of the new vegetation on either side of the road, but it is perhaps intended to show wheatfields. Panipat is next, with the tomb of Hazrat Bu Ali Qalandar. Beside the Jumna river on the right is a bathing ghat. The road widens to pass Sambha lake and Kunoor, and then goes to Sonepat, now only 20 cos from the capital. To the left of an abandoned serai below is a garden, and on the right the Jumna is now 7 cos away. Last on the strip is Narela.

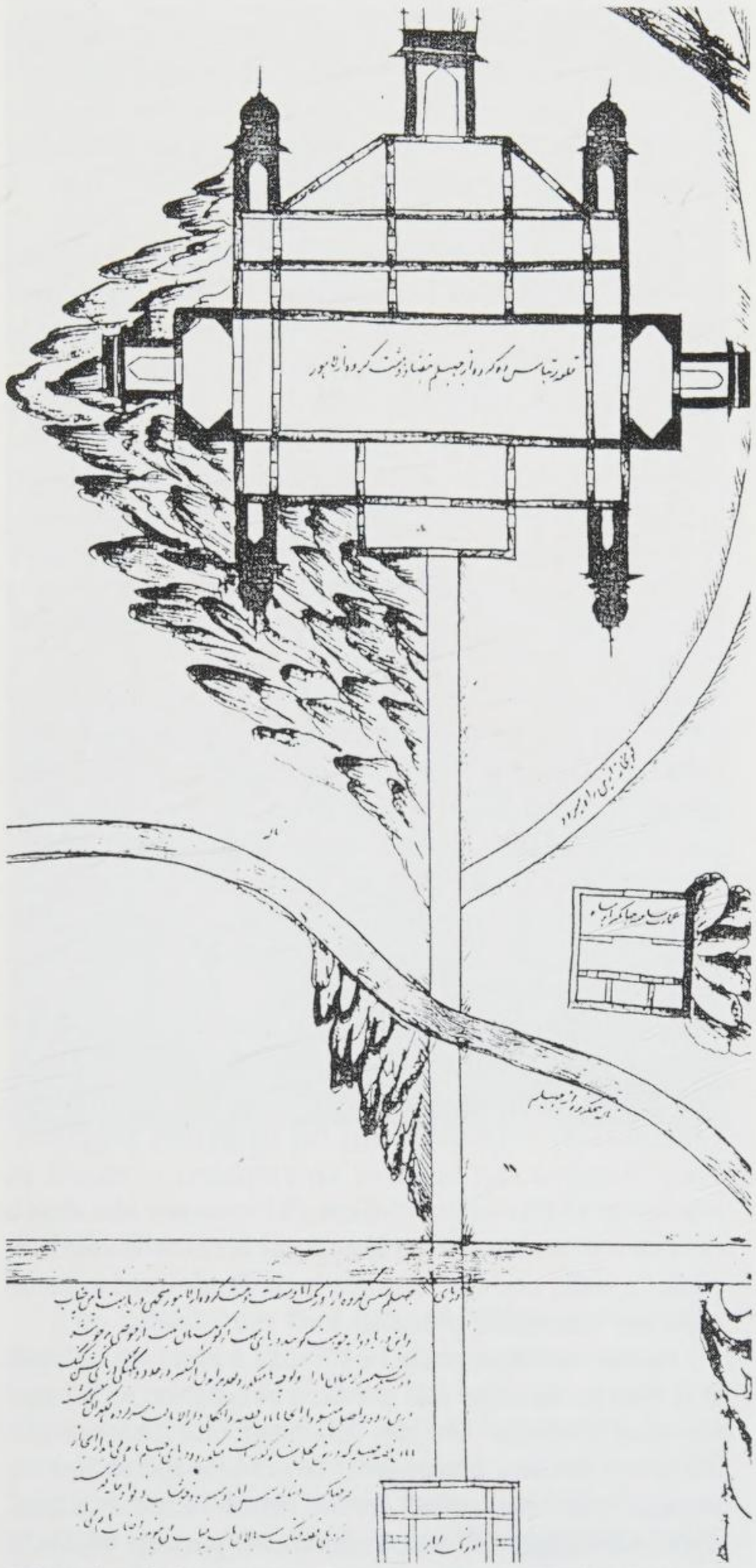
Page 100 b. Between Serai Mehrpur and an abandoned serai is a wheel-like symbol, which must indicate lift irrigation works here, with Persian wheels, though no mention is made of them. The village beside it is Kucheh-Keshavarpur. On the opposite side is a garden, and below that the Shalimar Gardens, with Ahmad Ganj across the road. The elaborate gateway is the entrance to Farasat Khan's garden, next to Serai Badli. Houses are amid the fields on the right. The next garden belonged to the late Sarkar Nawab Safdar Jang, and across the road is Azadpur garden made by Nawab Qudsia Begum. The next two gardens on either side of the road were laid out by Roz Afzun Khan. On the road here is a well and tower made by Jehangir. On the left is Mahaldar Khan's garden, with his residence seeming to be right across the road. On the right is the gateway to the mohalla, the neighbourhood, and beyond are Firozshah and Wazirabad. At the bottom is the gate of Malik Dinar.

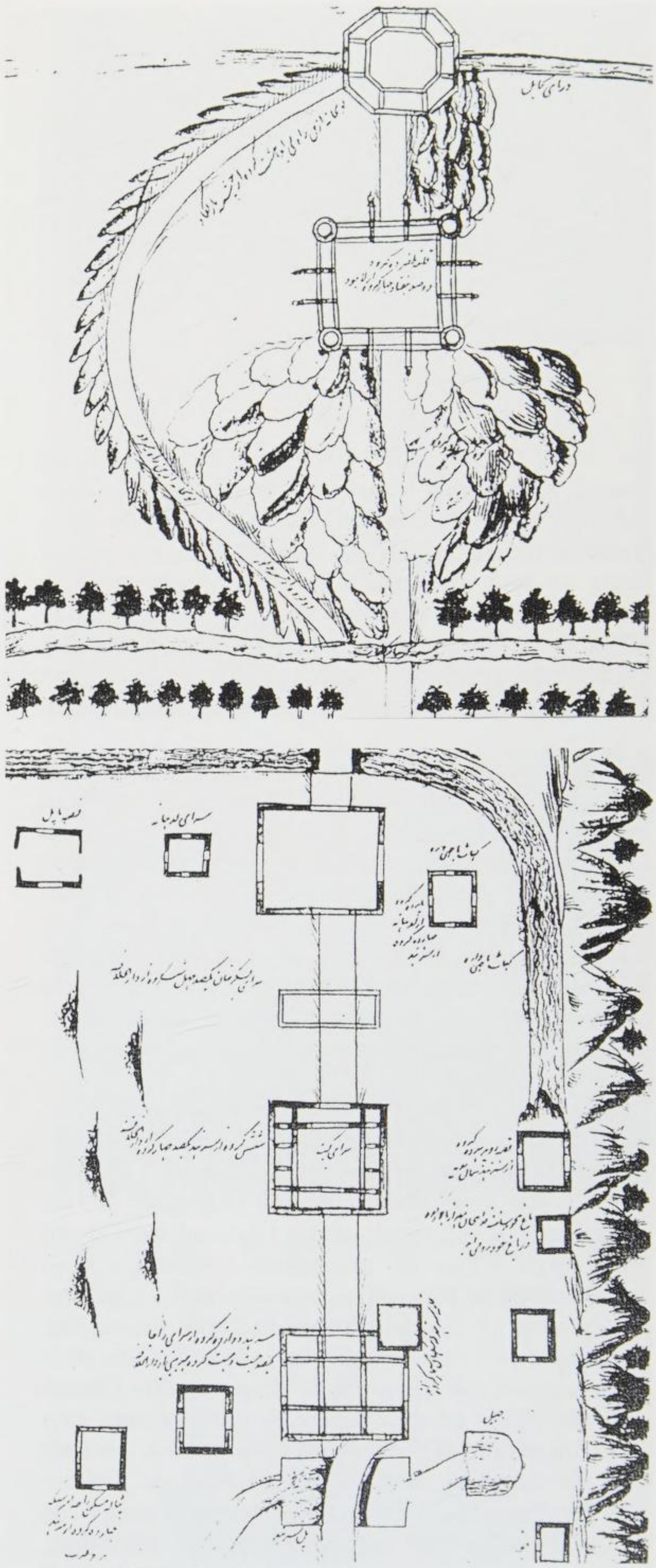
Page 100 c. On the left is the Id mosque, and on a hillock is a sufi shrine. Next are crossings of Qassabpura and Idgarh, giving on to Jatpura street. Further down is the old Idgarh, then Guzar (passage), then a crossroads near the tobacco market. The square building is the haveli of Abu Ali Khan, and from here a path leads to Qadam Sherif and Paharganj. Under the city wall are servants' quarters. In the centre at the top is Shir Beg Passage. On the right is a garden, and next to the cos minar in the road is a well made by Alamgir Shah. After the Sihezari garden is Mandvi Begum, which is next to Jatpura village on the Shirini bridge. Outside the fort is Sihrindi mosque.

The town of Delhi, or Shahjahanabad, is shown first, and below it is the fort, as a separate enclosure. Around the wall of the town, starting on the right are the Kabuli Gate, the Lahori Gate, ?, and Ajmeri Gate. On the right of Lahori Gate is the haveli of Nawab Shir Jang. The road goes left towards Khari Baoli, behind Fatehpuri Masjid, then through Hauz Qazi to Ballimaran and the Jama Masjid. On the river side of the town is a bazar built by Burhan-ul Mulk, and to the left of it, his haveli, near Masjid Barah. The Faiz canal is shown flowing through Chandni Chowk, with the large octagonal Chowk in the middle. On the right is Bagh-i-Begum. The canal is shown taking several right-angle turns before flowing under the walls to the fort. The gate at the bottom right of the town is the Kashmiri Gate. Between the canal and the town wall is the orchard and then the pavilion of Shaista Khan. In the left corner of the town is Khas

Bazar, and beside and at the end of Chandni Chowk is Urdu Bazar.

The large gate into the fort is the Lahori Gate of the fort, with vineyards on either side of it. On the right is Chowk Sa'adullah Khan in front of Delhi Gate of the fort, with open ground between. At the lower left corner is Buland Bagh, the raised garden. At the bottom is the Jamna river beneath the fort, and on the right is the Gate of Salimgarh. In the centre is The Blessed Fort, the Capital of Shahjahanabad.





Three details from map 43.2, showing how it differs from the larger 43.1. Above is the fort of Rohtas (p. 97 b). The long inscription is about the Jhelum river and the land it passes through, stating that the Bihal is the fifth river below the Chenab and it originates in Tibet. After joining the Kishanganj river it flows past Qasba Jhelum, and is then called the Jhelum river. Near Jang Sialam it joins the Chenab, and then takes the name of Chenab. Above right is Zafar Fort (p. 95 c) and below right is the Sutlej river with Ludhiana and Sirhind (p. 99 a–b). The two versions vary considerably in this portion, in the size and placing of buildings, and in the distances from Delhi.

44	
Title	[Ali Mardan Khan Canal]
Size	43 x 1250 cm
Language	Persian
Script	Persian
Material	Paper on cloth
Location	Hyderabad: Andhra Pradesh State Archives
Cat. no.	—
Bibliography	—

44

No study of this very interesting map has been traced. It shows the canal that used to flow through the main street of Delhi, Chandni Chowk, bringing water to the Red Fort, the imperial palace. A canal thirty cos long had been built in the 14th century by Sultan Tughlak, taking water from the Jumna at Khizrabad. The Mughal emperor Akbar had the canal repaired, but it again became clogged and stopped flowing. When Shah Jahan was constructing his new capital in the 1630s, he ordered the canal to be repaired, and extended another 30 cos to flow through the town and palace. The engineer-in-charge was Ali Mardan Khan, and the canal was often known by his name, though it was officially called the Nahr-i-Bahisht, Paradise Canal. During the troubles in Delhi in the second half of the 18th century, the canal ceased again, and even its course through the town was sometimes obscured by buildings and accumulated litter. It was not restored until the British gained control of the town in the early years of the 19th century.

The names of so many of the nobles who had palatial houses alongside the banks of the Jumna are given on this map, that it should not be a difficult task to date it accurately. At the beginning of Faiz Bazar, just to the south of the Fort and the Chowk Sa'ad-ullah Khan an inscription reads: Baradari [guesthouse] of Baba Rao, recently built. Unfortunately none of the guidebooks to Delhi record this building, and it was probably demolished by the British along with the Akbarabadi Masjid and the Chowk in 1858. Many of the names of noble houses date from the middle of the 18th century, and it is possible that the map was drawn at about 1760, or just before the destruction of the city by the continuing raids of the Rohillas and occupation by the Marathas. Major A. L. H. Polier recorded in a letter in 1776 that, 'About 15 years ago, an attempt was made by order of Ahmed Shah Durrany, to repair the canal; which at the expence of a lack of rupees, succeeded, and the water came to the gates of Delhi: but the succeeding troubles, and the war with the Marathas, engaged too much of Abdullah's attention, to permit him to think any more of the matter; and the canal dried again' (*Asiatic Annual Register*, 1801, p. 37). Perhaps the map was made when this repair work was planned.

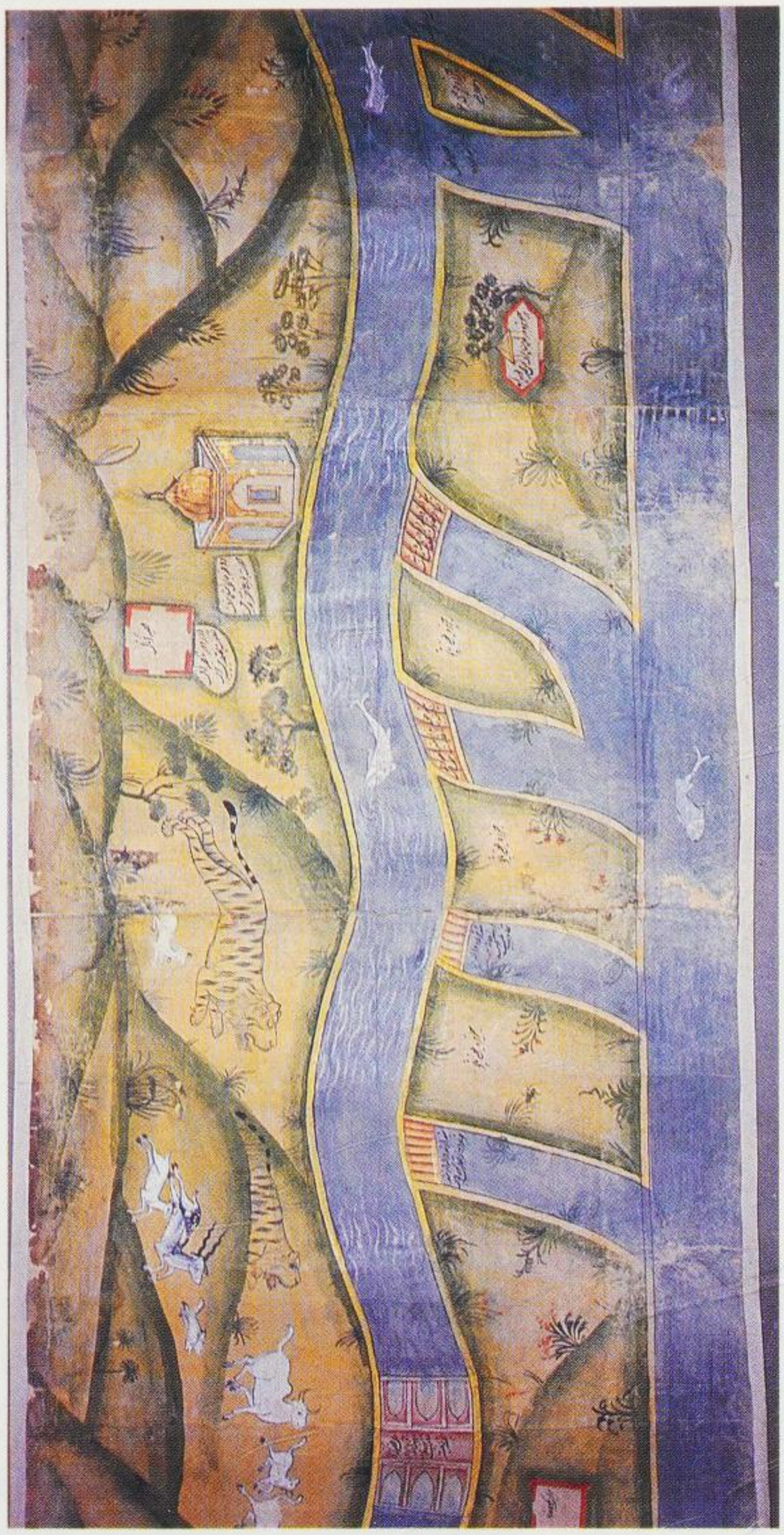
The map begins at the start of the canal at the village of Benawas, where the residential quarters of the canal staff at Khizrabad are shown on the left (1) (numbers in brackets match those between panels in full map). On the right of the canal is the dam adjacent to the Kasba of Khajnun, and a note that the distance from Sardhana to Khajnun is 180 jeribi (a jeribi is about 2 miles). Such distances to towns on either side of the canal are given all the way down the map. The name of each village or town and either the pargana it is in or the chowki it comes under is given in the square symbols, and its distance from the canal in the oval symbols.

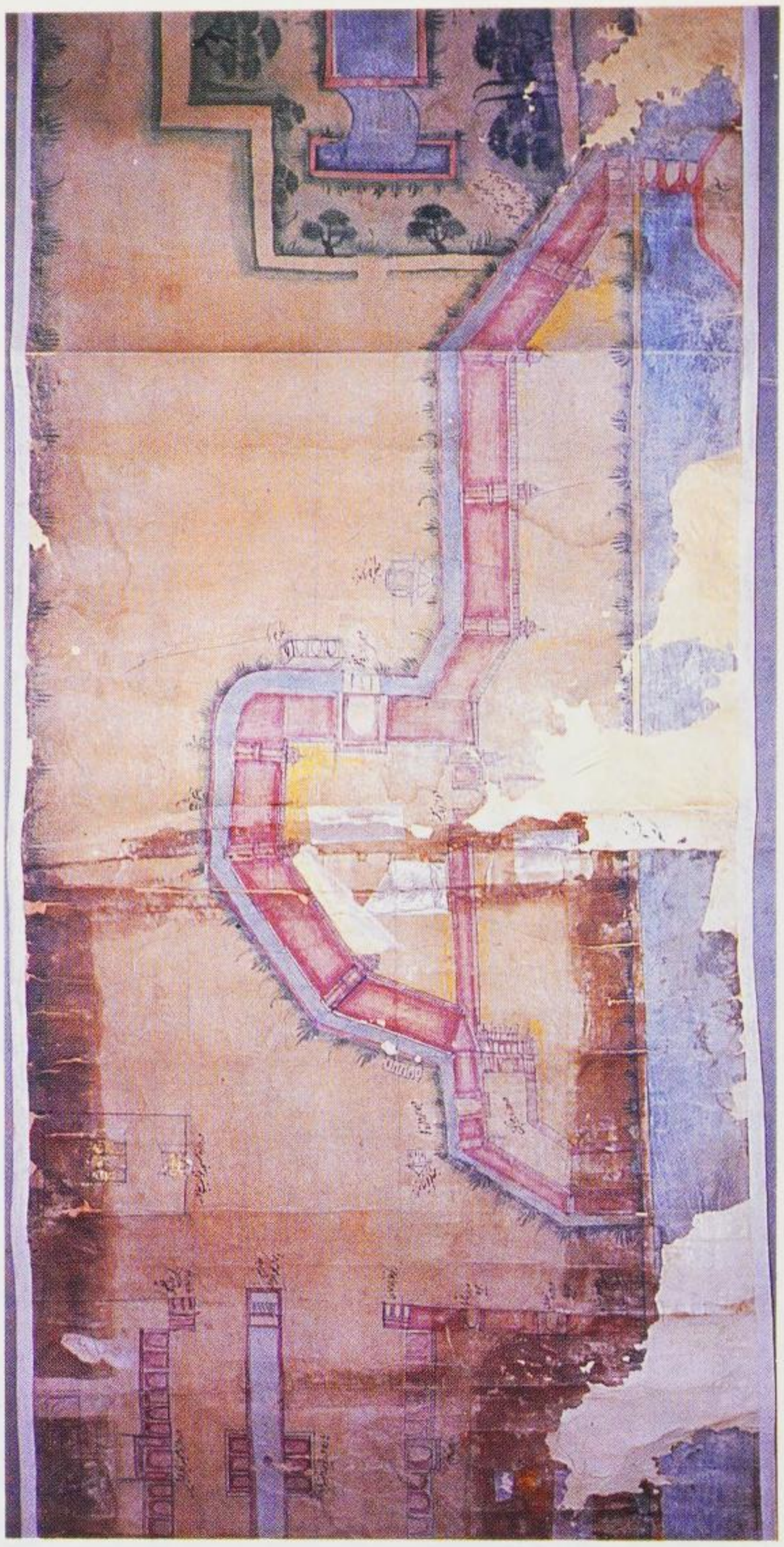
The domed building on the left of the canal is the Mausoleum of Bhu Ali Qalander (2), and below it is Kasbe Karnal. Wherever there was no information to be given, the artist filled the space with the flora and fauna to be found along the route, here tigers and leaping deer. Fish are also shown in the water, as they are on most Indian maps.

Further down on the left (3), three branches of water are taken from the canal and soon combined into one. The note at the junction reads that here the water reaches to the wheels in the villages of Dadri, Dalalpur, Rohtak, Bahrki and Turki Khan, and smaller inscriptions give the exact width of each branch. Across the canal is Kasbe Panipat and the gardens of Lutf-ullah Khan Sadiq and Sher Afghan (the first husband of Nur Jahan).

On the left bank of the canal at several places are series of small symbols like sailing boats (4). They denote the wheels used to lift the water from the canal to flow into the fields for irrigation purposes. Near Sonepat the head of an elephant is shown in the water (5). It was customary to measure the depth of water in a channel by how high it came on an elephant's side, and the symbol is perhaps used here to indicate a suitable place to ford the canal.

As the canal approaches Delhi names of villages give way to those of the gardens beside the canal and the size of each. On the left bank are the crossed leaves of banana plantations (6), while the following names have been noted on the right: Rehrash Khan, Buh Ali Jang, Dukhand, fort and garden of Dehi Jaman, several gardens belonging to Mir Khan, Dhik Rai, two gardens of Hatim, Mohsim Khan, Khen Singh, Bahadur Khan, Shevrai, and Khuda Bhaksh. After some gap are the garden and katra of Mehel-dar Khan. This brings us to the 'Red Bridge beside



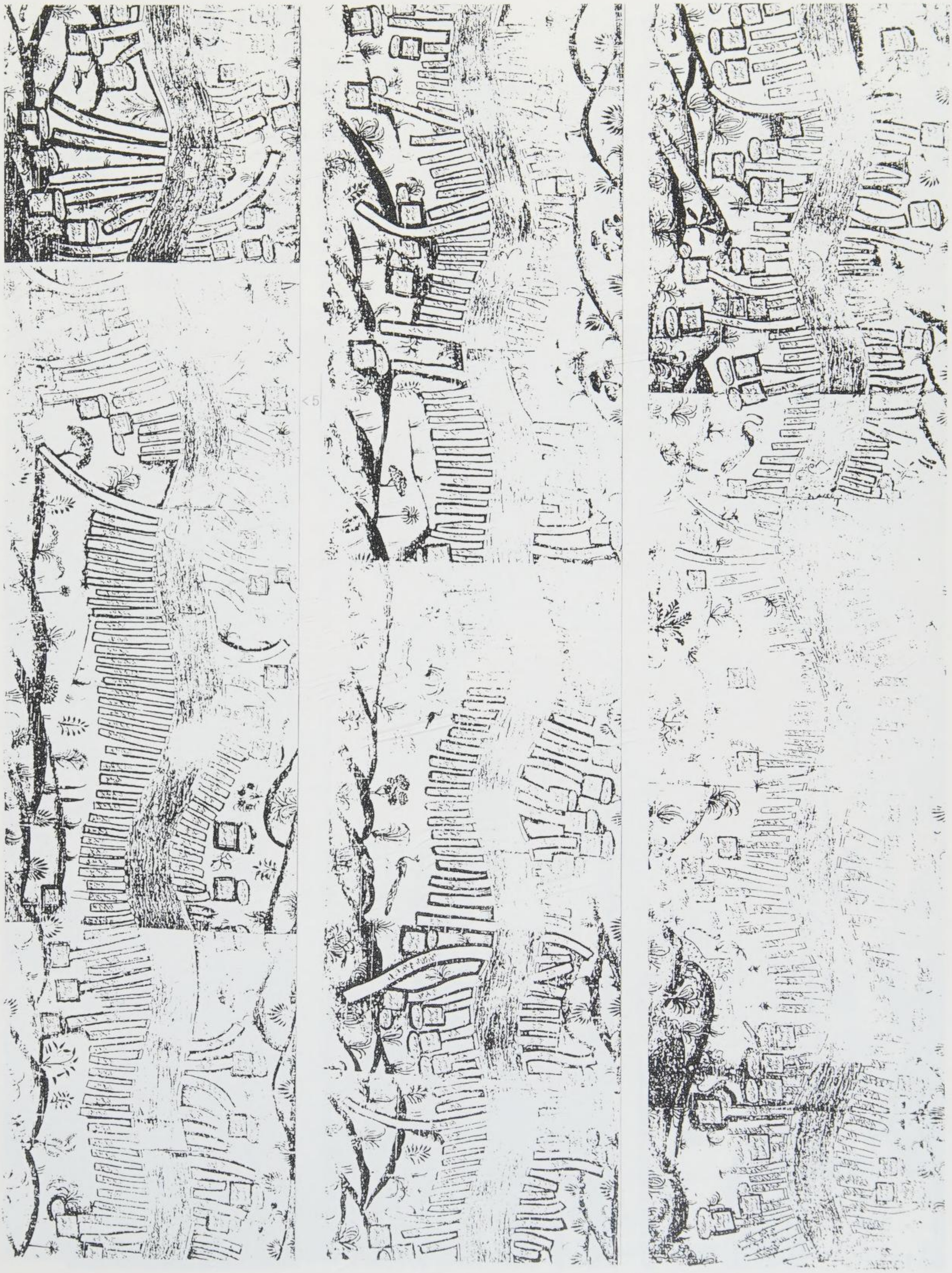


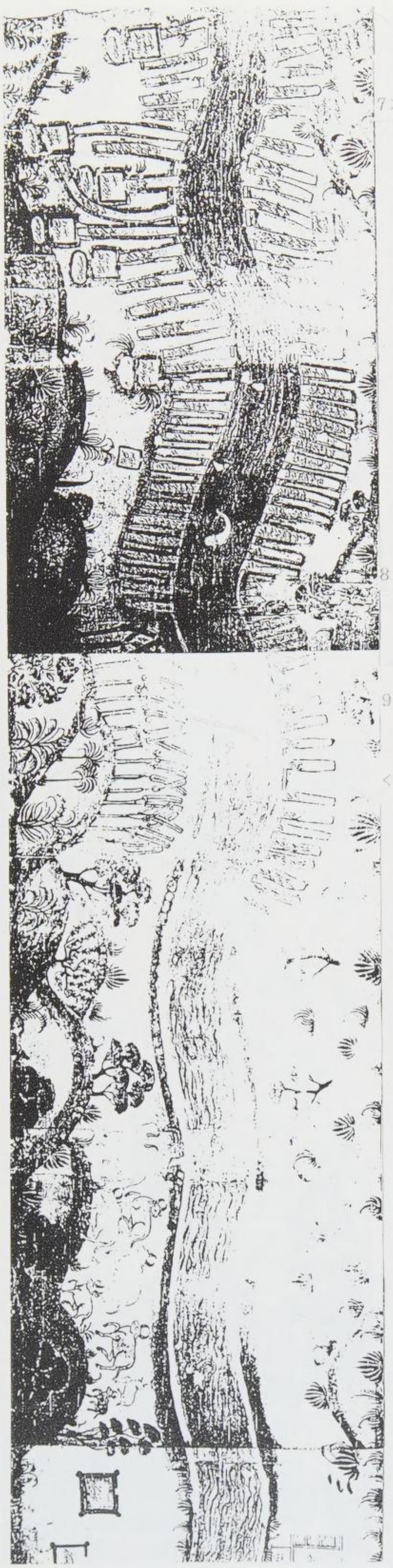
44a (above left). The mausoleum of Bhu Ali Qalander at Karnal.
44b (above right). Shahjahanabad.
Below. The start of the canal at Benawas.

Katkar in the city' (7), with Serai Sita Ram and Serai Rohilla Khan on the opposite side. North of the serais is a large herd of cattle.

The next bridge is Arjmand bridge on the road to the city, then Crescent Bridge near the road to the city. The canal then flows through the garden of Chandni Chowk made by Begum Sahiba (8). To the left is the workshop of the royal arsenal, and the katra of the arsenal. Below them, and before an old mosque, is a rectangle named 'old and broken buildings of the poor and public'. The bridge below the garden is called Bridge of Qudia in the city on the way to Kashmiri Gate (9).

On the river side of the canal, gardens have given way to havelis, the households of the nobles. Below the Red Bridge is one more garden, that of Qudsia

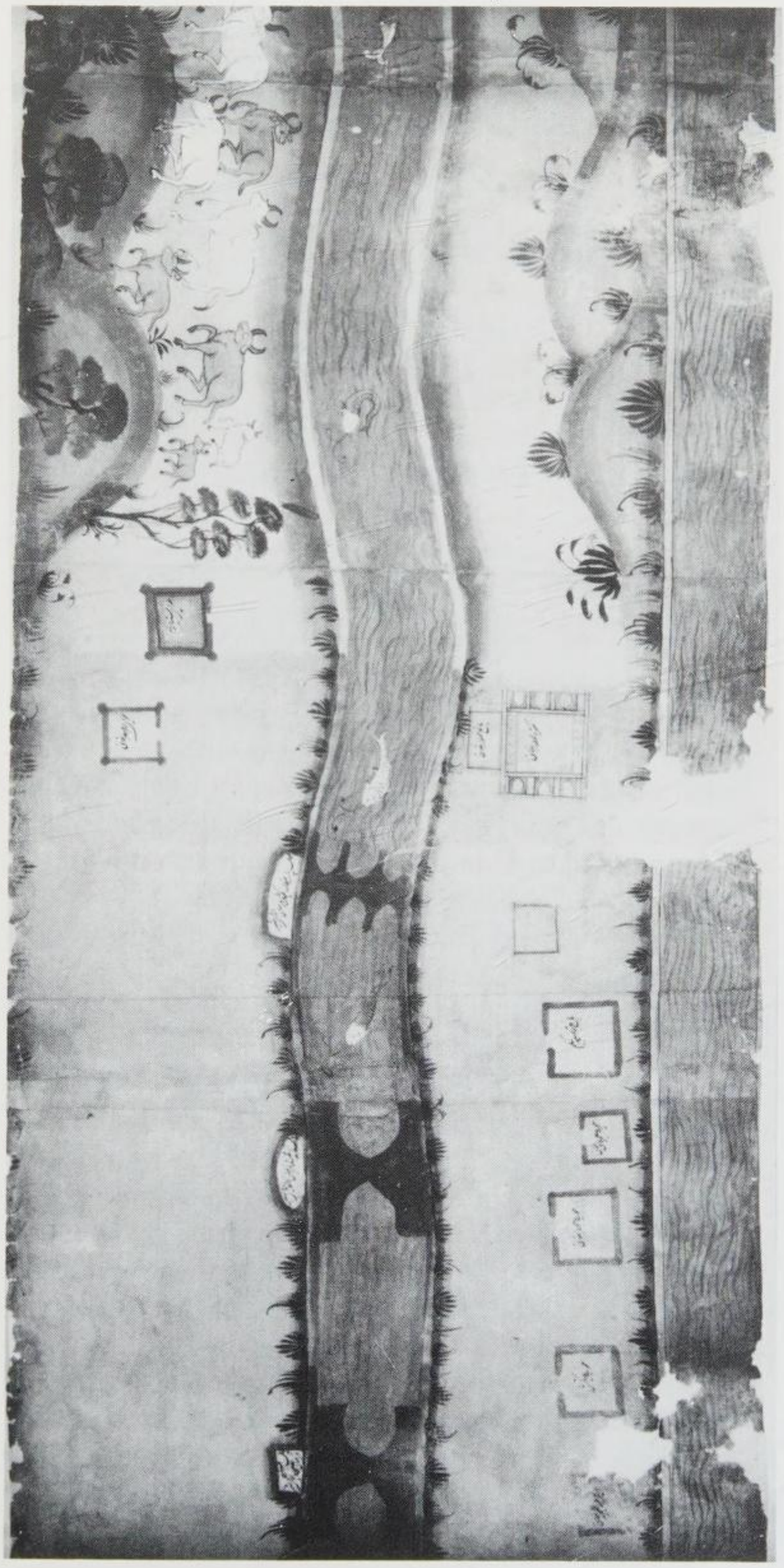




Begum (drawn by the Daniels), then the havelis of Alambadar Khan, Jaffar Khan Bankash, Abdul Majid Khan, Prince Darah Shikoh, Majhi Bawun (either a name of a building or a Hindi word), and Haveli Roshan-ud-daulah.

Prominence is given to the large Royal Grape Garden outside the Red Fort. At the lower end of it, the water of the canal is shown falling into an underground passage leading to the moat of the fort (10). Within the fort there is little detail, though several of the gates are named. The branch of the canal which flowed through Chandni Chowk is also not shown.

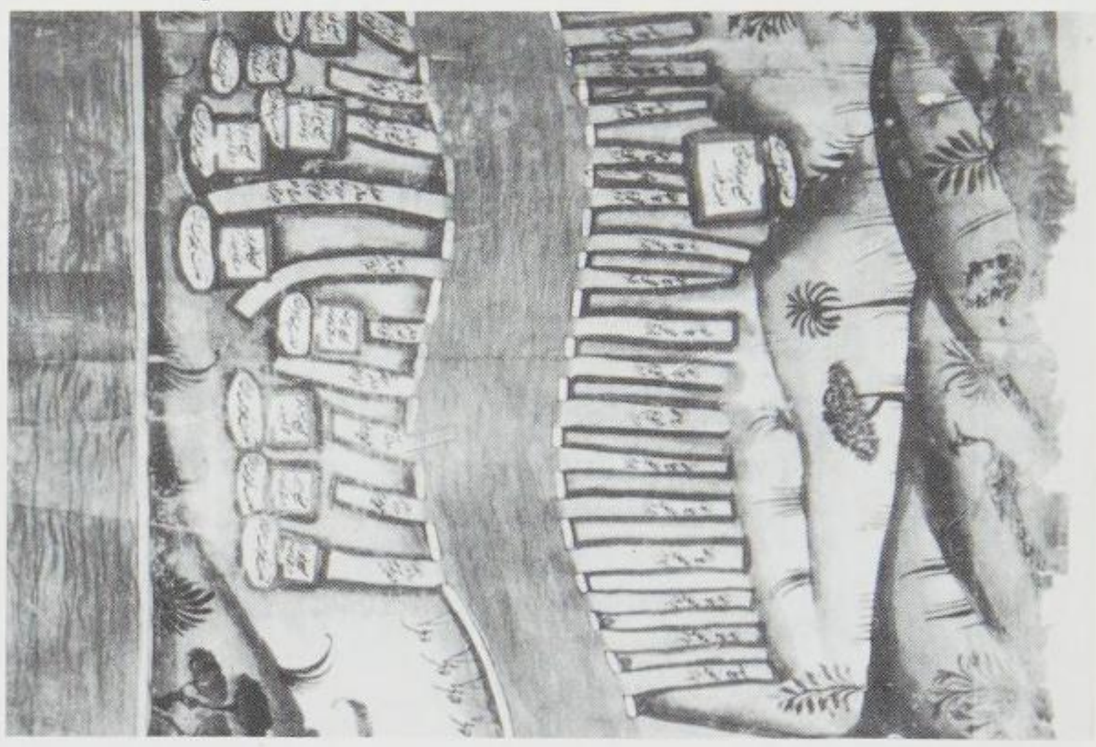
44c. Bridges over the canal near Shahjahanabad.



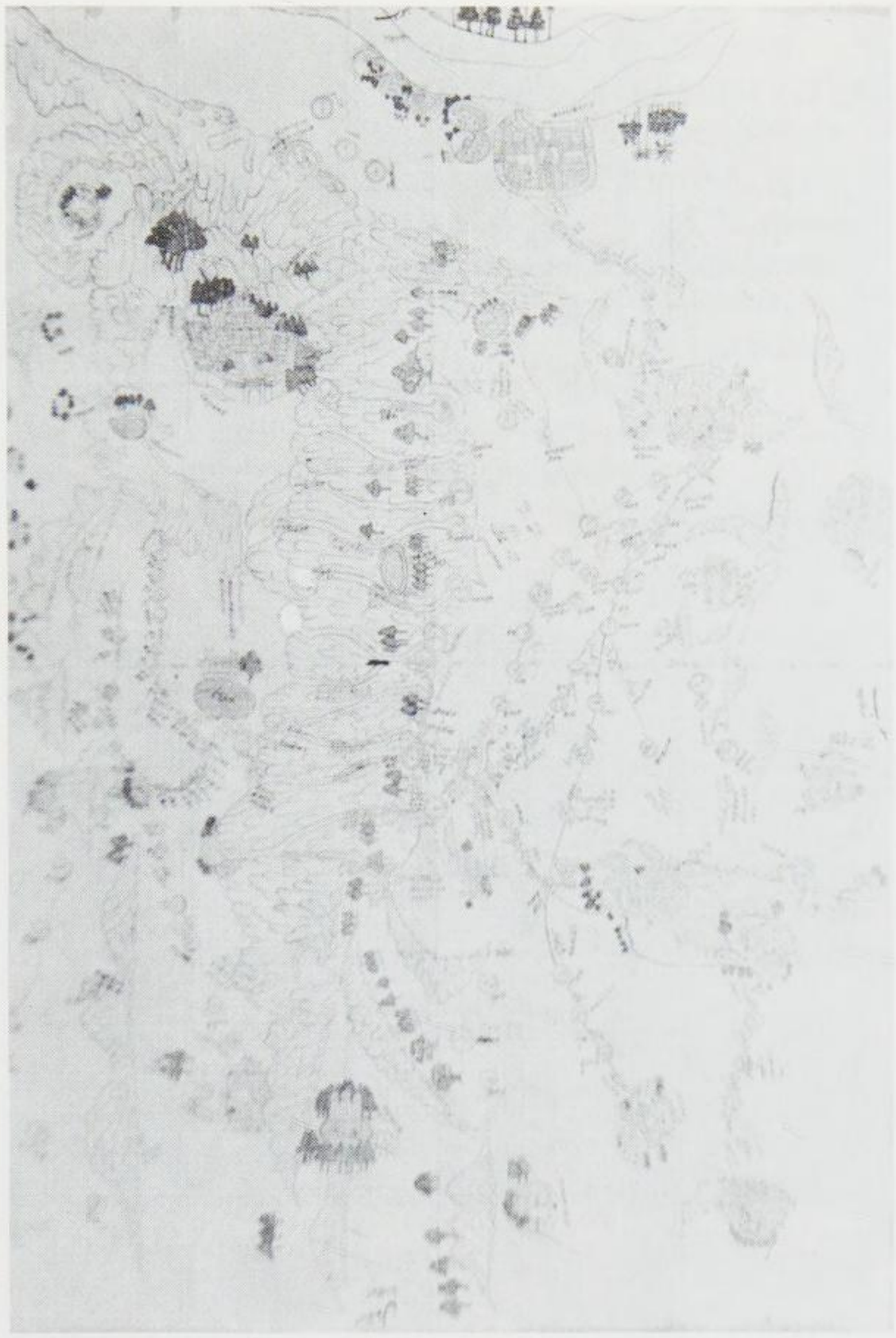
Beyond the fort is the Chowk Sa'ad-ullah Khan (11) with his haveli towards the river. Across the chowk are the mosque of Nawab Bahadur and the large Akbarabadi mosque. Next to it is the mausoleum of Sayid Abdul Qadr. As the canal reappears from beneath the Chowk, the Baradari (guesthouse) of Baba Rao is shown, and it has been recently constructed (12).

The map ends at the Delhi Gate of the city, so called because it led to what was then known as Old Delhi, or the ruins of previous cities on the site before the building of the new capital of Shahjahanabad.

44d. Irrigated land beside the canal.



45a. Udaipur in the hills, from the map on p. 110.



45
Title [Gujarat and Rajasthan]
Size 107 x 150 cm
Language Urdu
Script Persian and Devnagri
Material Paper on cloth
Location Jaipur: City Palace Museum
Cat. no. 119
Bibliography —

45

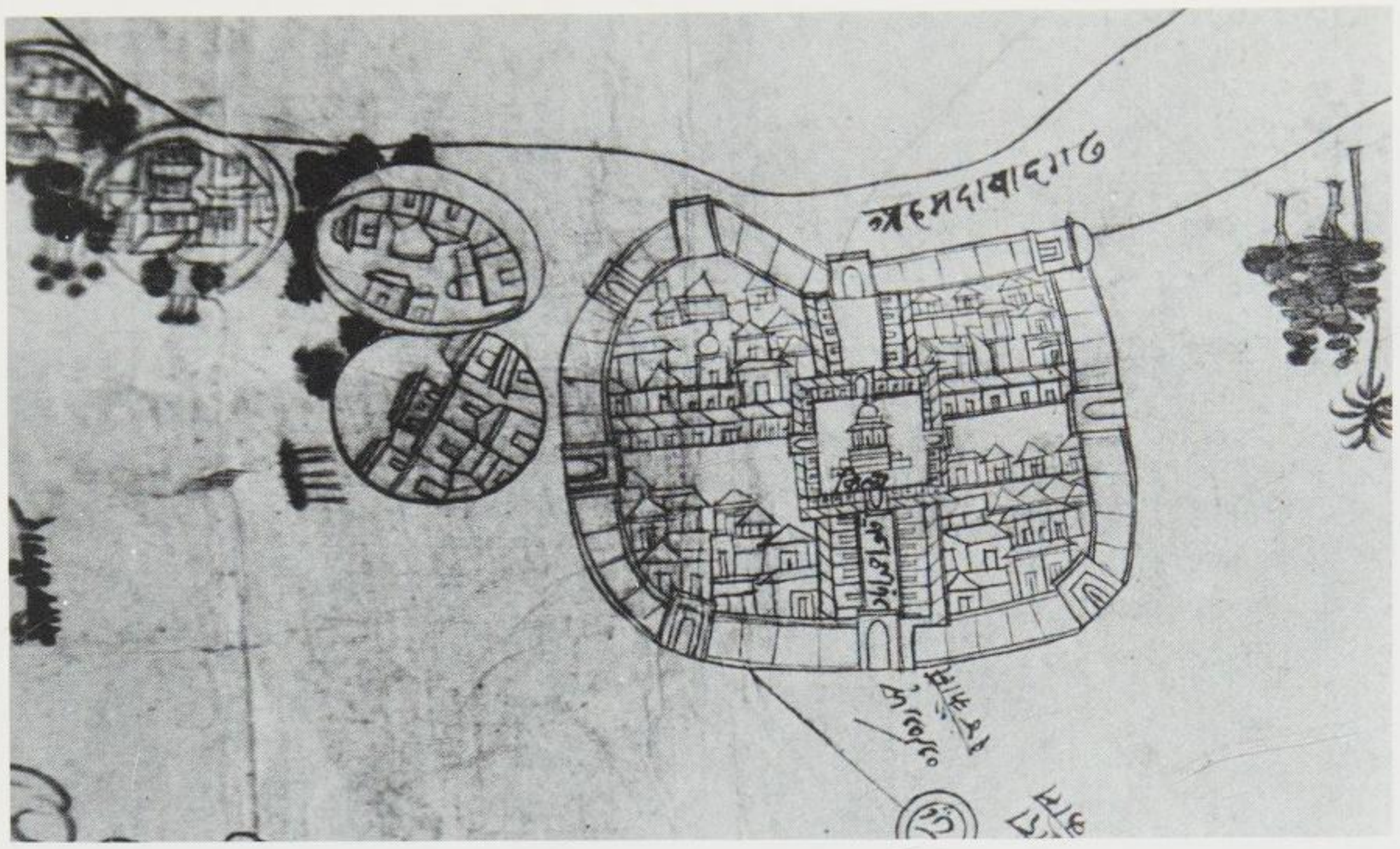
There are several maps of this part of India. Whether more maps were made here, or more of this part have survived, is a matter for speculation. The styles of the few that remain vary very much, as can be seen. This one appears to be more in the style of Mughal maps from the geographical information it displays, but the decoration is more like the Jaipur style. The text is in both Persian and Devnagri, with the latter probably added later. It is possible that it was a copy made from an original Mughal map, but adapted for use by people from Rajasthan.

On stylistic grounds, Chandramani Singh of Jaipur has suggested that it may have been made at the end of the 17th century. This would make it earlier than many other maps in the Jaipur collection.

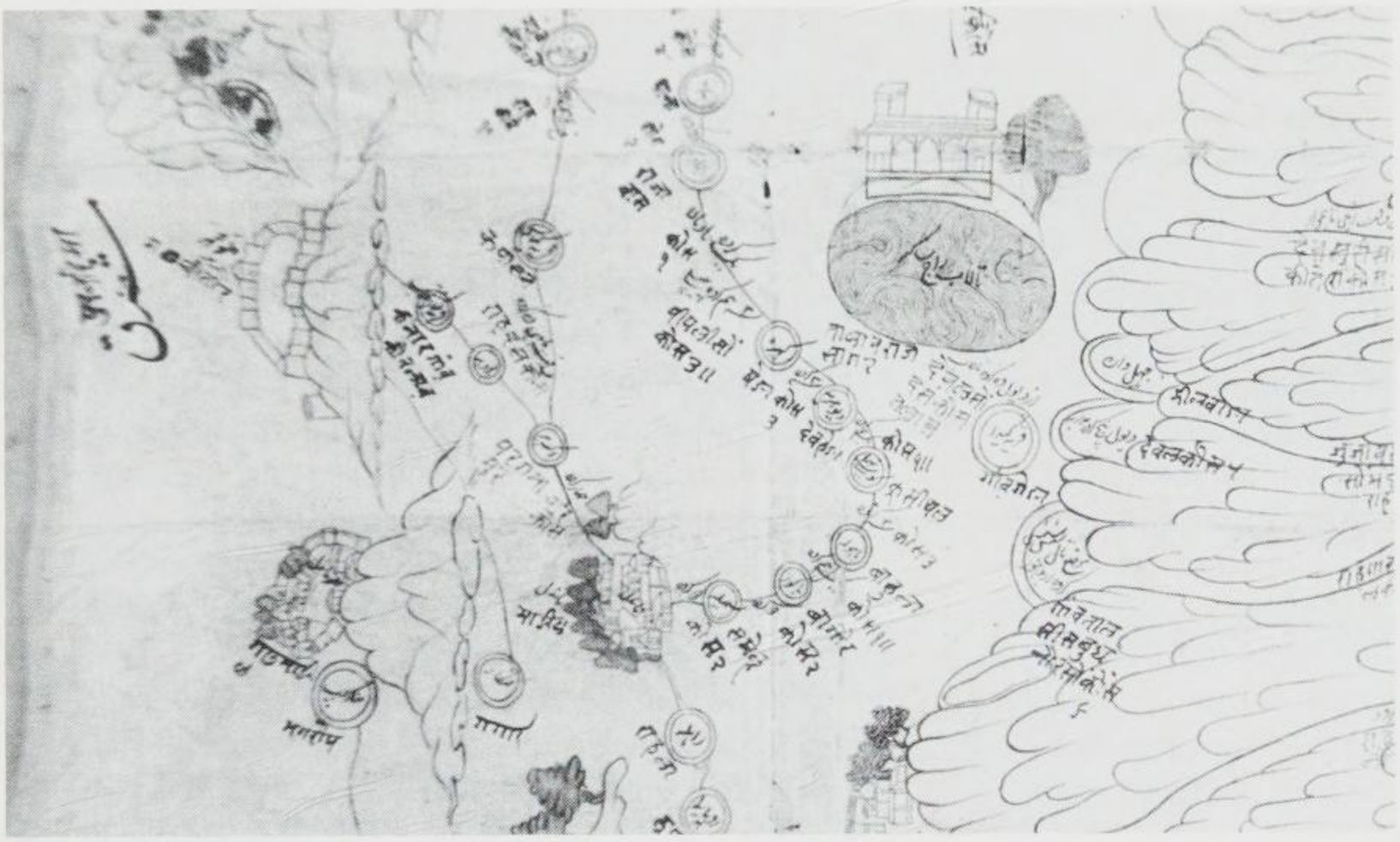
All four directions are given, a practice found on most Indian maps, and the orientation is not very far out. The inscriptions, however, are to be read from all sides. Essentially it is a route map, showing the major roads within an area of about 450 miles north to south and 150 miles west to east in western India. On the south-west side it does not extend as far as the sea, so it can have had no connection with pilgrimages to Mecca, or foreign trade. Some routes are given in greater detail, crowded with names, and with distances shown in cos between every village. Others are less well defined, and the road from Ahmedabad to Udaipur is not even marked with the single line of the others.

The town of Ahmedabad is at the bottom of the map, on a bend in the Sabarmati river. The mountains running the length of the map and forming such a prominent feature are the Aravalli range, though not entirely correctly shown. At the top of the map is Ajmer with the Anasagar lake to the west, and Pushkar beyond. The left side of the map is less densely filled, since it covers the Rajasthan desert. Some longer distances have been given in captions, for example, Jodhpur to Pokran 40 cos. Some political information is also supplied, such as Asop being the residence of Suraj Mal.

Towns have been shown conventionally, with the more important ones depicted by buildings within the circle. The houses, however, do not form a view of the town as it existed, being mere symbols. Except the Sabarmati, rivers are omitted.

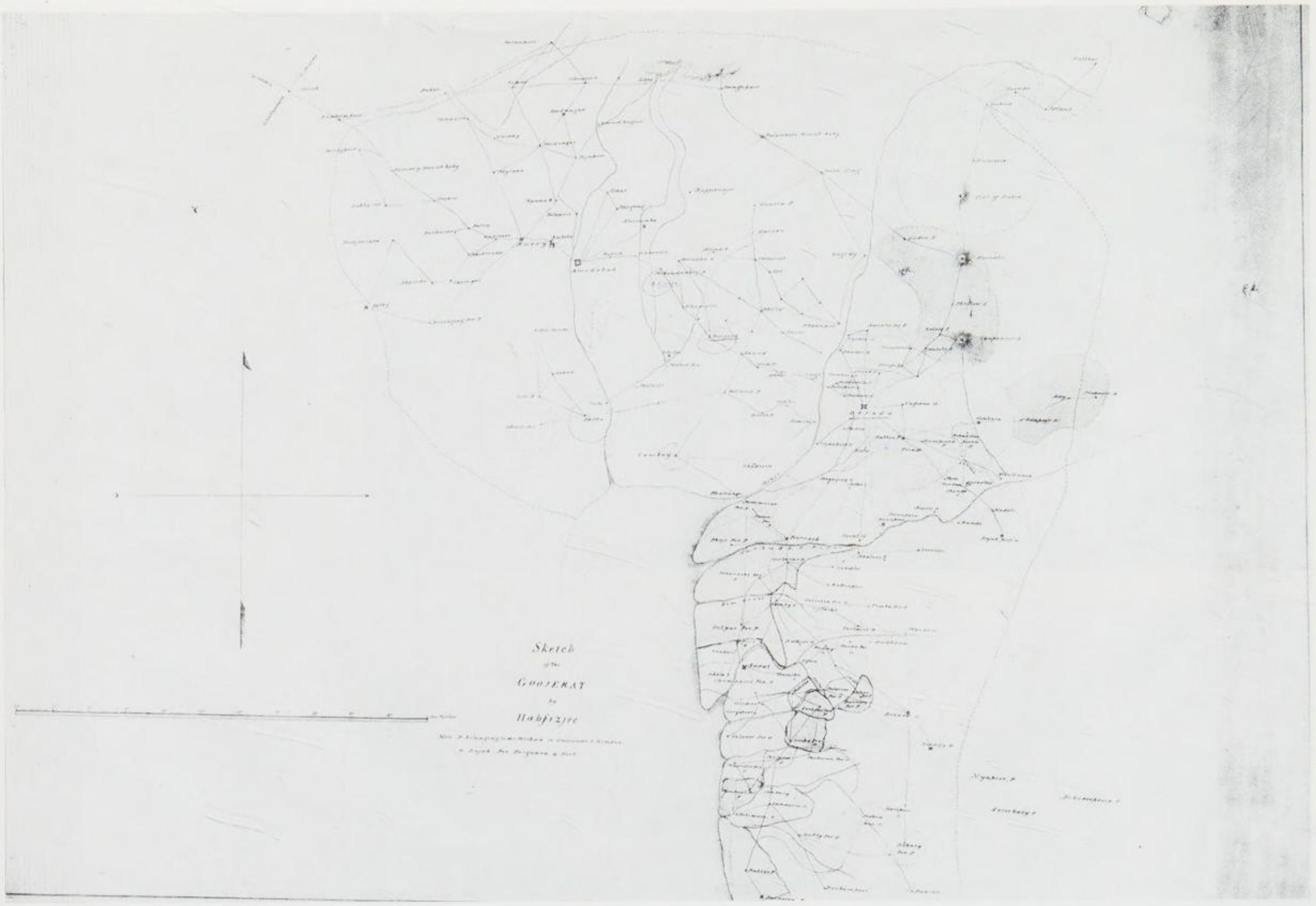


45b.
The town of Ahmedabad.



45c.
The Rajsagar lake is shown in great detail, with the town of Chitor to the east of it, on the hill. The neighbouring hilltop town is Garh Mandal, but no road to it is shown.

45d.
The town of Sojat was thought to be in the centre of Marwar state. Here it is shown as the place where six main roads meet. Some of the names can be found on the Sojat chart [10], but here the distances are also given.



46
Title Sketch of the Goojerat by Hahfizjee
Size 65.8 x 48 cm
Language English
Script English
Material Paper
Location London: British Library MSS
Cat. no. Addl. Mss 13907(e)
Bibliography —

46

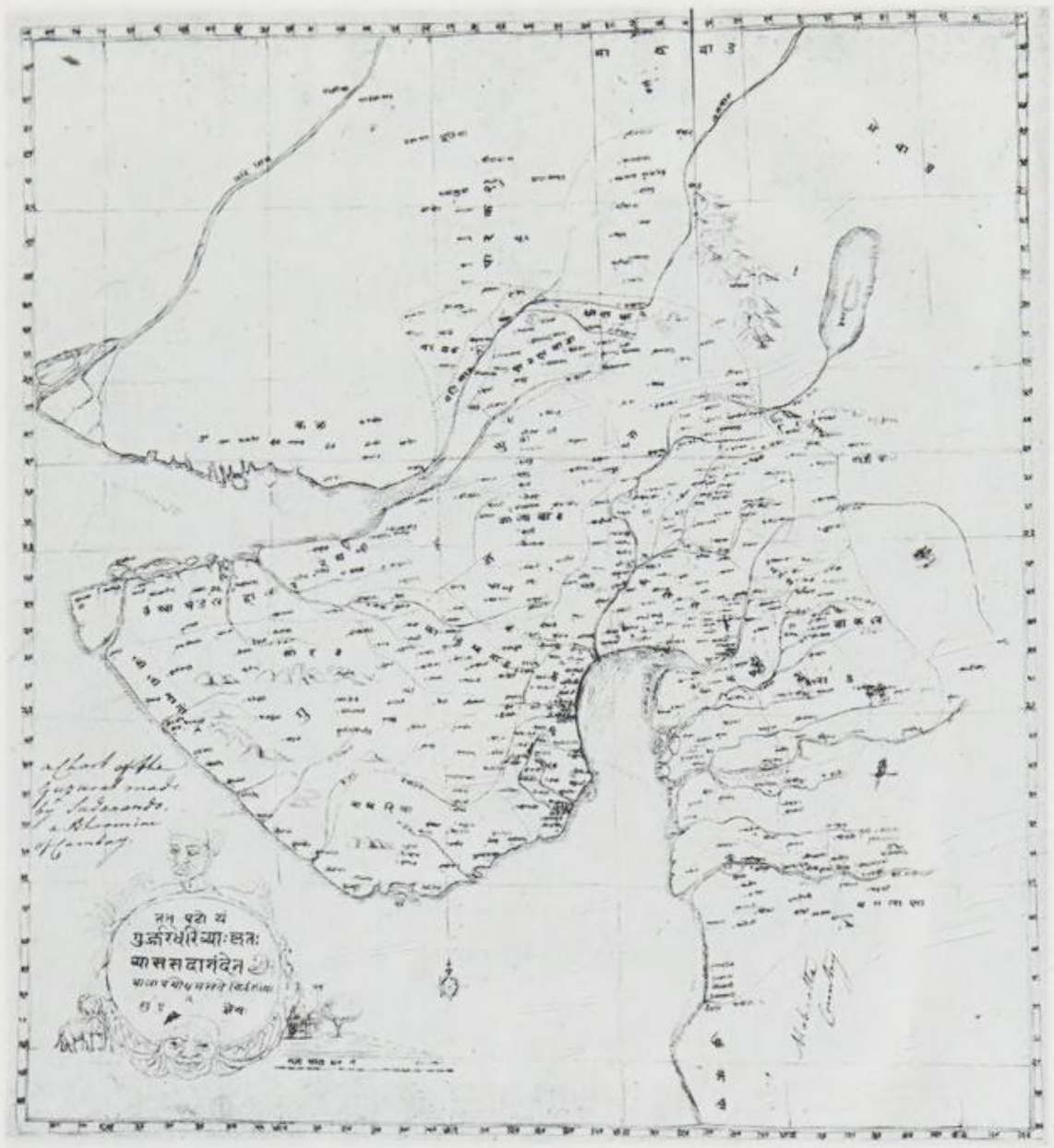
Though this map is written in English, and presumably this is the original, not a copy, it has been included here to show how map-drawing developed once the new European methods had been taught. Nothing has been discovered concerning Hahfizjee, though it is possible that he might have been mentioned in the early records of the Survey of India.

The map marks the towns and political divisions, with dotted lines showing the pargana boundaries. Roads are drawn straight, with no regard to detours. Some of the parganas have been coloured green, while Champaner is grey and Ally orange.

The map does not follow any known European map in its depiction of the coastline or the interior. It therefore seems likely that it was drawn by a person who had been taught European methods, using his own knowledge of the area, perhaps even by using the perambulator on the instruction of his teacher. This map would then have been incorporated into the maps prepared by members of the surveying branch of the army. It is not known whether it was drawn before Sudanand drew his [47].

At the end of the 18th century Gujarat was not easily accessible to Europeans, and certainly not places off the major routes that have been depicted in this map. There are still, however, quite a few blank areas, for which information was perhaps not available.

Bound in the same volume at the British Library are four maps of the road between Covriporam and Seringapatam, drawn 1790–93, by A. Allan, Captain of the Guides, either 'copied from a Map by a Native Guide' or from information supplied by local inhabitants. They are certainly European in style, and not reproduced here.



47
Title: A Chart of the Guzurat made by Sudanando, a Bhramin of Cambay
Size: 43 x 48 cm
Language: Hindi
Script: Devnagri
Material: Paper
Location: London: British Library MSS
Cat. no.: Add. 8956. fol. 2
Bibliography: Hove, *Tours,1855, pp. 77 and 91 ;* Phillimore, *Historical Records,* I. pp. 122–23; Rennell, *Memoir*, 1793 edn, pp. 186 and 224

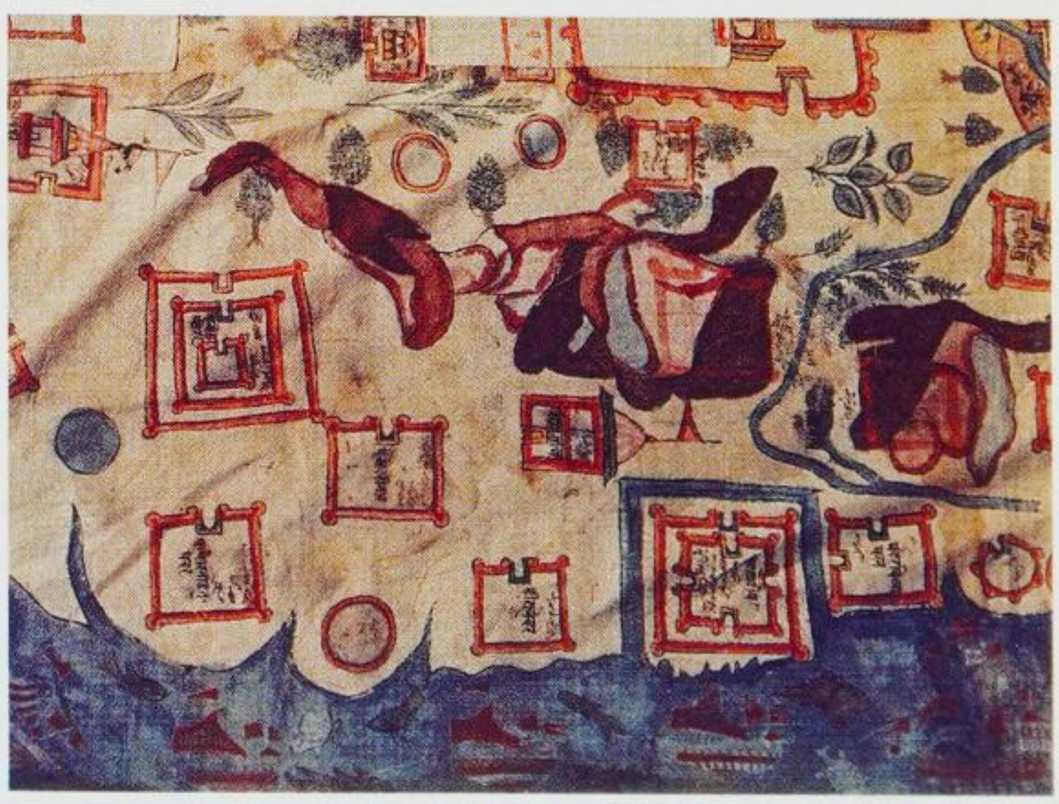
47
The date of this European style map of Gujarat drawn by an Indian can be more easily established than the previous map [46], since it was bound into a journal written in 1787–89. Anton Pantaleon Hove, a doctor and botanist, was sent to India to collect information about the plants, particularly cotton, that might be profitably grown there. He toured Gujarat, and then went to the Konkan before returning to England. The journal he kept was not published until 1855, when it formed a volume in the Bombay Govt. Records, New Series XVI, as *Tours for Scientific and Economical Research made in Guzarat, Kathiawar and the Conkuns*.

On page 94 of the manuscript Hove referred to this map: 'Mr. Holford the resident at Cambay employed a Bramin of the name of Sudanande Bramine, in the survey of the inland countries & he himself made several excursions towards the Sabermatty.' A note in the published version (p. 77) adds that Bramine Sudanande constructed his map by desire of Mr Holford's predecessor.

Hove had another map with him, that had been constructed with information supplied by Lt Turner who surveyed between 'Ahmood and Broach', but his map was made 'in haste and inaccurate' regarding both the roads and the purganah divisions, and Hove had difficulty using it (ms. p. 110). It had been published by Alexander Dalrymple in 1782, and the copy Hove used is bound with his manuscript, with many pencilled alterations and additions.

James Rennell knew of this map by Sudanand, whom he described as 'a Bramin of uncommon genius and knowledge'. According to Rennell the map had been drawn at the suggestion of Sir Charles Malet, Resident at the Maratha court at Poona, from whom he received a copy. He stated that, 'This genuine Hindoo map, contains much new matter. . . it is remarkable, that it gives the form of Guzerat with more accuracy, than the European maps could boast of.' Having been Surveyor General in Bengal, Rennell was in a position to know if a map was indigenous or European, and since we have his opinion on this map by Sudanand, and he showed no surprise that a Hindu could draw such a map, we must conclude that he was more familiar with Indian maps than appears from his writings, and also that there were perhaps more maps than we know about. In his *Memoir to the Map of Hindoostan*, Rennell mentioned only three 'native' maps, this one, and one each of Punjab and Bundelkund. Possibly he knew of others, but had better information about the areas they covered, and so did not make use of them.

48a. The island of Diu, from the lower left edge of the full map on the following page.



48

This is one of the very few maps that has been studied, and thus approximately dated. Prof. R. N. Mehta has deduced that it was drawn after 1720 A.D., since it shows the Alam Panah fort of Surat, and before 1765, since it does not show the large Sursagar tank on the west of Vadodara (Baroda).

The map was described by Narmadashankar Bhatt in his history of Cambay, *Khambhat nu Sanskrtika Darshan* (no date, p. 122); he had seen it with the family of the diwans of the emperor, and said it had been painted by Ali Mohammad Khan in 1756 A.D. The artist also wrote *Mirat-e-Ahmadi.* According to Mehta, the positions of the following towns are correctly located on the map: Surat, Bharuch, Khambhat, Baroda, Champaner, Ghogha, Talaja, Jafarabad, Anasagar, Udaipur, Dungarpur, Jalore, and Disa. The map is oriented in such a way that the writing is all to be read with east at the top.

In the centre of the map is the town of Ahmedabad on the Sabarmati river. The wall around the city is shown, as well as the large number of buildings and gardens that had sprung up outside it. It seems that they are drawn conventionally rather than from survey, though the larger buildings were possibly correctly located.

The small coloured detail on the previous page shows the island of Diu. The lower detail opposite shows the Mahi river with Dungarpur in its banks. Opposite above is the town of Ahmedabad.

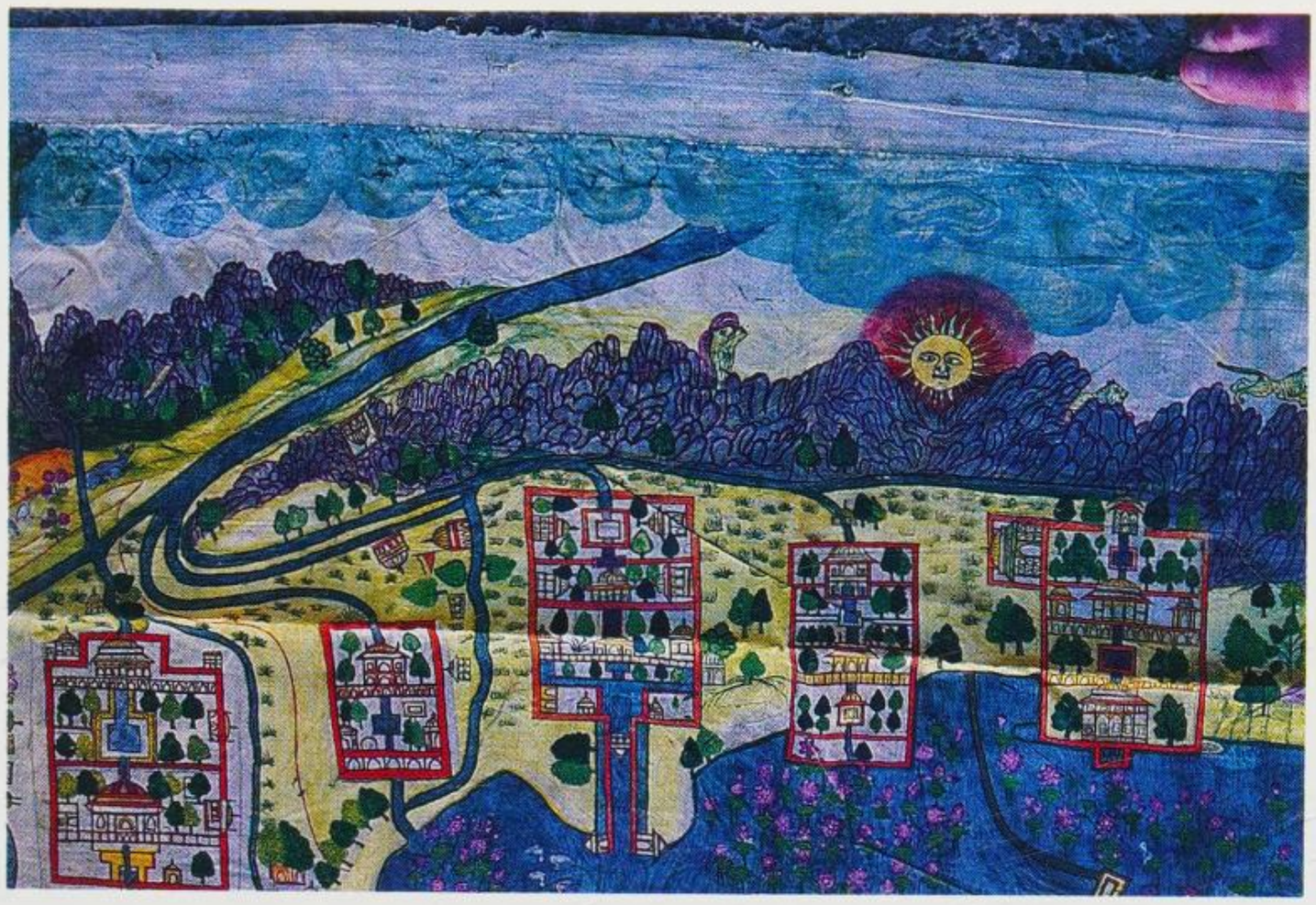
48	
Title	[Gujarat and Rajasthan]
Size	440 x 406 cm
Language	Persian and Hindi
Script	Persian and Devnagri
Material	Cloth
Location	Baroda: Museum and Picture Gallery
Cat. no.	G. R. 5631
Bibliography	Mehta in *Reflections on Indian Art and Culture*, pp. 165–169

49
Title [Kashmir]
Size 280 x 223 cm
Language —
Script —
Material Cloth
Location Jaipur: City Palace Museum
Cat. no. 120
Bibliography Chandramani Singh in *Facets of Indian Art*, pp.189–90

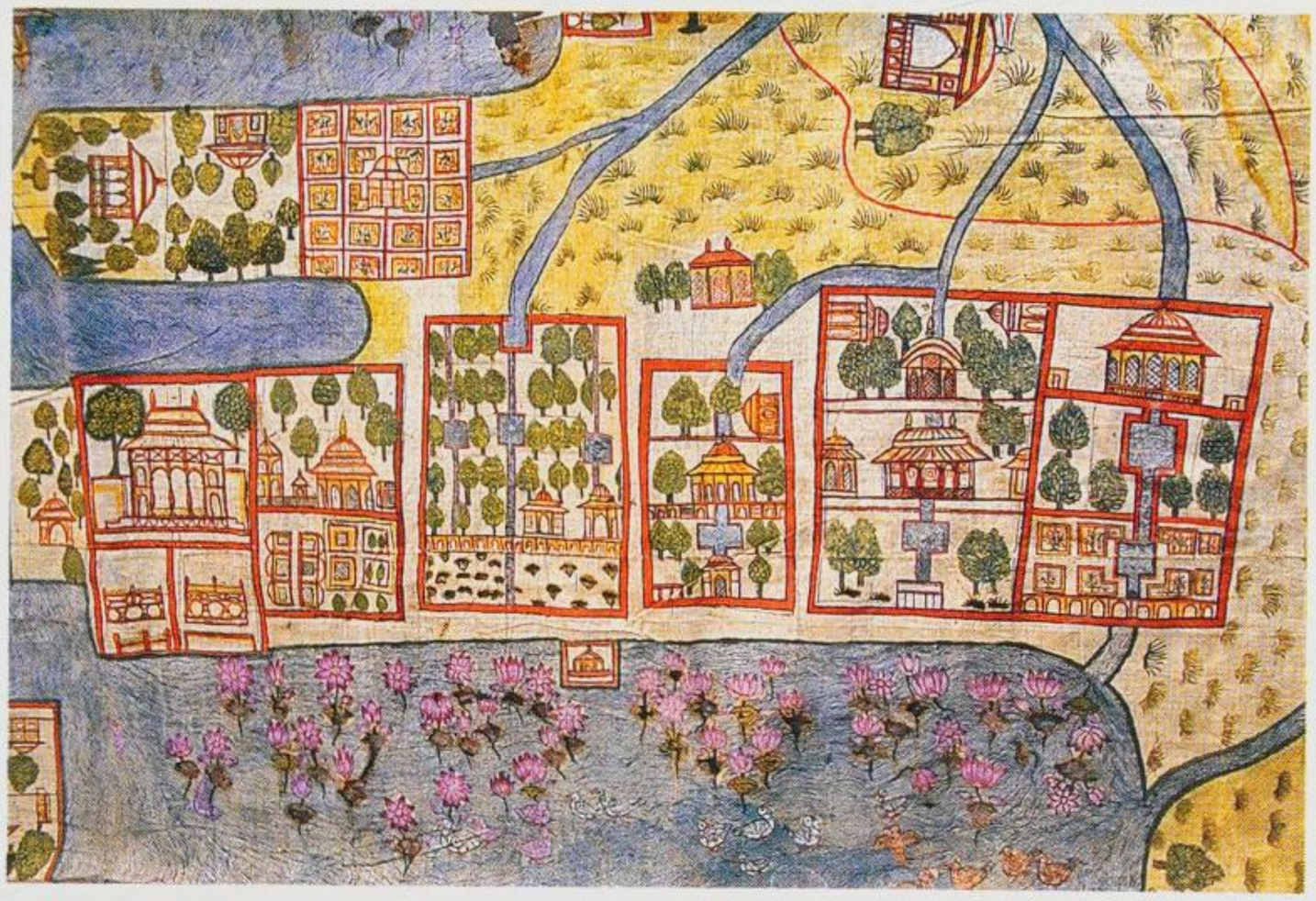
49

The rajas of Jaipur served the Mughal emperor at Agra and Delhi, and several of them went to Kashmir in their official capacity. Which of them either had this map made to commemorate their visit, or brought it back with them, is not known. There is no text to aid the dating, except four similar inscriptions on the border which was added to the main cloth. They all read 'Map of Kashmir' in Devnagri characters. Here and there figures are shown and a study of their dress might give some information.

In the adjacent detail the fort of Hari Parbat is clearly shown, with the town spread out below it.

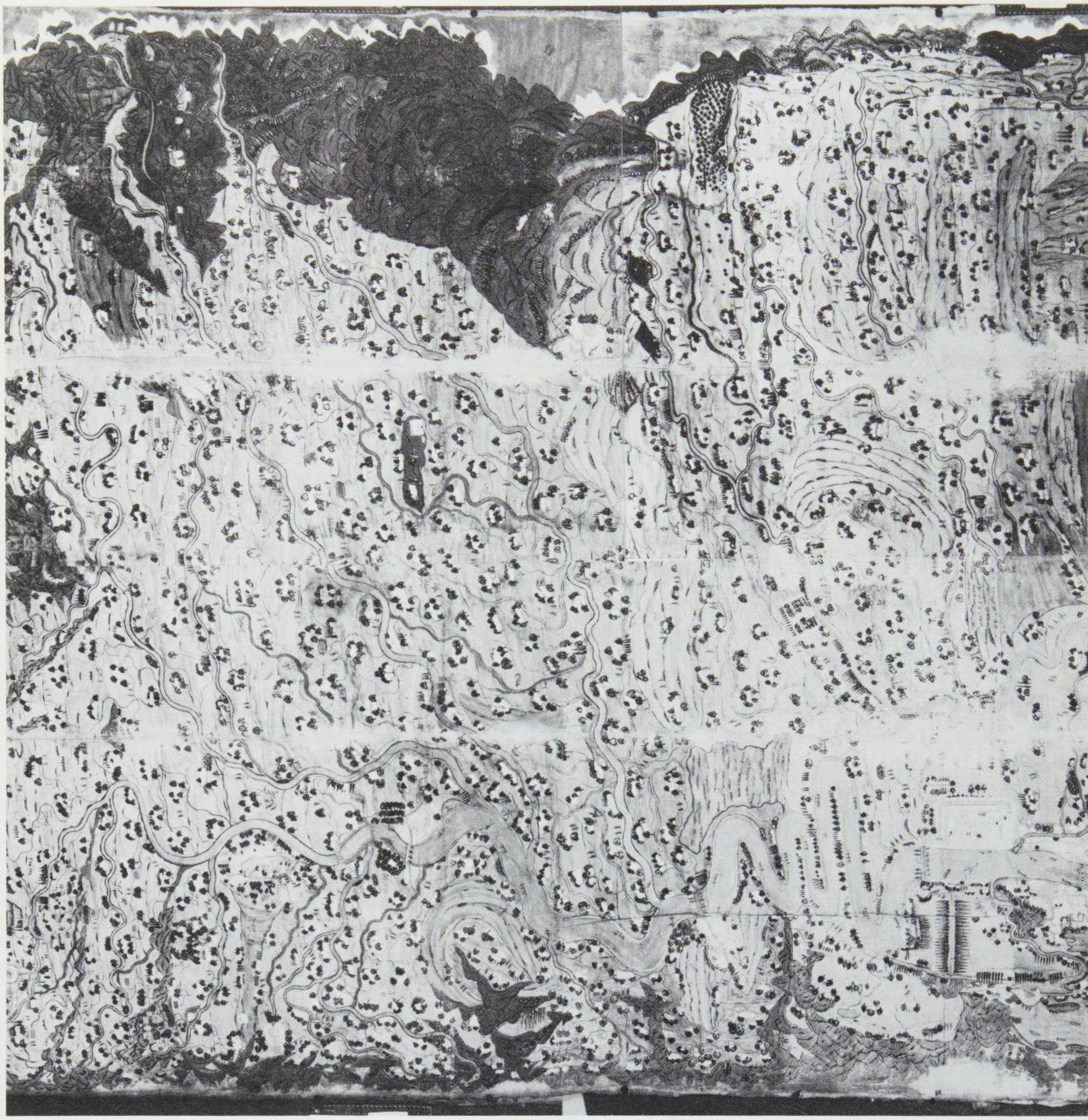


49b. Detail of the eastern side of the map, showing the rising sun. The famous Mughal gardens of Srinagar, Shalimar Bagh and Nishat Bagh, as well as several others, are well drawn. Behind them the lower mountains are in purple, while beyond the higher snowy peaks are visible against the blue sky. Tigers play artistically across the peaks, while deer and birds are shown in the meadows. The surface of the Dal Lake is covered with water lilies. The road across the lake is marked, with the bridge which still stands today.



49c. On the opposite shore of the Dal Lake are more Mughal gardens, and the shrine of Hazratbal. Here a hair of the Prophet is said to be preserved.

50a. Detail from another map of Kashmir, very different in style though covering much the same area, and equally decorative. In the centre is the fort of Hari Parbat, but the Dal Lake is now much smaller,



50

The inscription at the lower right corner of this beautiful map of the Kashmir Valley records that it is a Map of Hazara, presented to Captain Wade by Abdur Rahim, with the customary panegyrics to the recipient. On the back are three English inscriptions: 'Punjab. Panoramic Sketch of the Valley of Cashmeer by Abdool Raheem, a Native of Bokhara', 'Recd. from W. H. Macnaughton Esq Secy to Govt of India Poll Dept. 24th August 1836 (34)', and 'Panoramic view of Cashmere. In a Lr. from the Poll. Agt. at Loodhiana d/ 4th July 1836'.

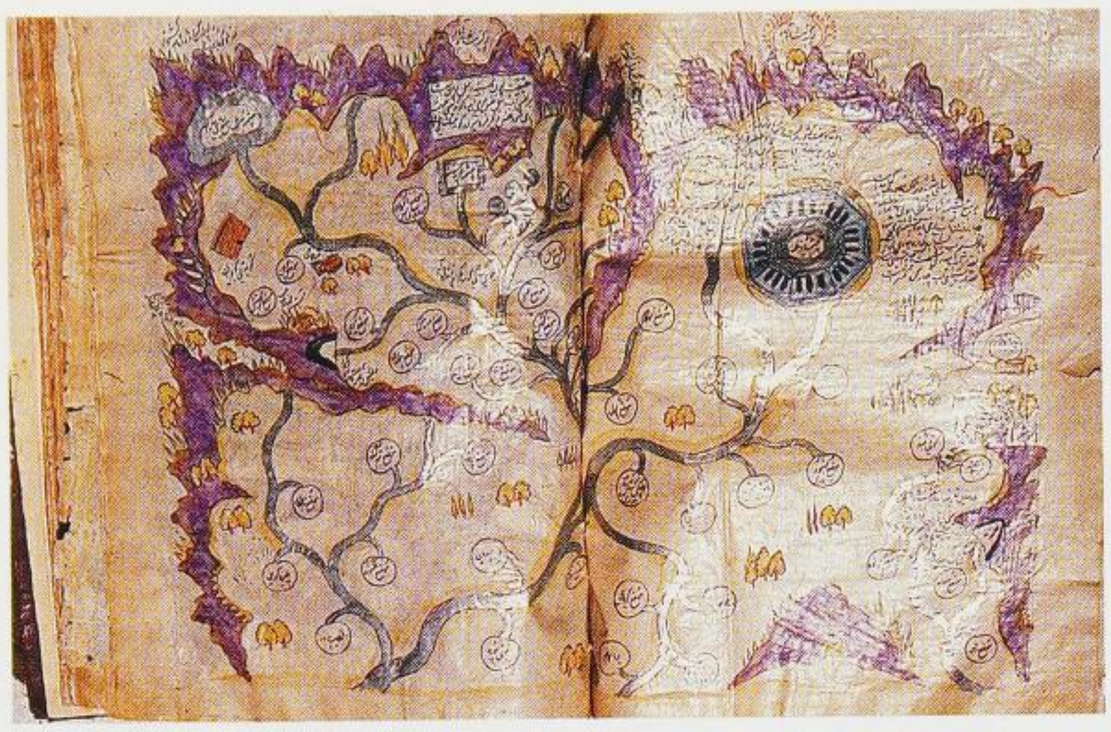
In 1891 it belonged to Dr Hugh Falconer FRS, as his name is in various places on the back. In the Political Letter dated 30th Jan. 1837, the receipt of the map was recorded, and the Surveyor General was ordered to reconstruct it on a 'European Model'. In a later letter, dated 10th April 1837, a sum of Rs 500 was sanctioned to be paid to 'the Native Author of the Map', — a large sum in those days. It appears from this that the map had been made shortly before it was presented to Wade, but it is also possible

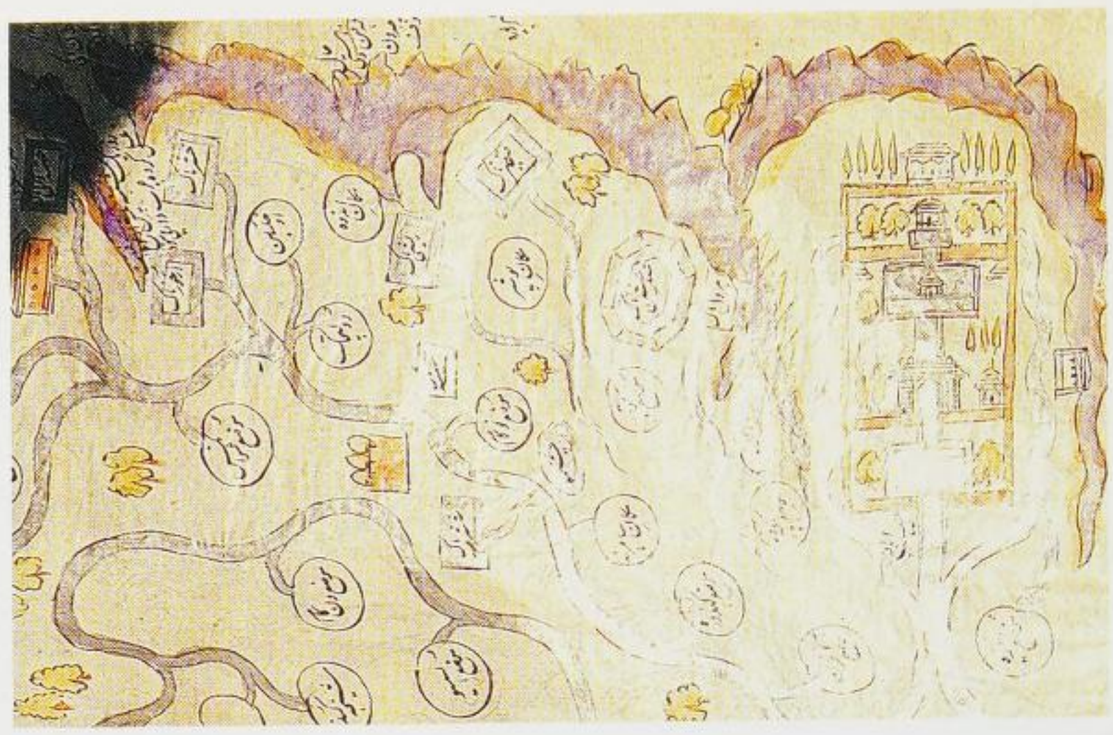
50

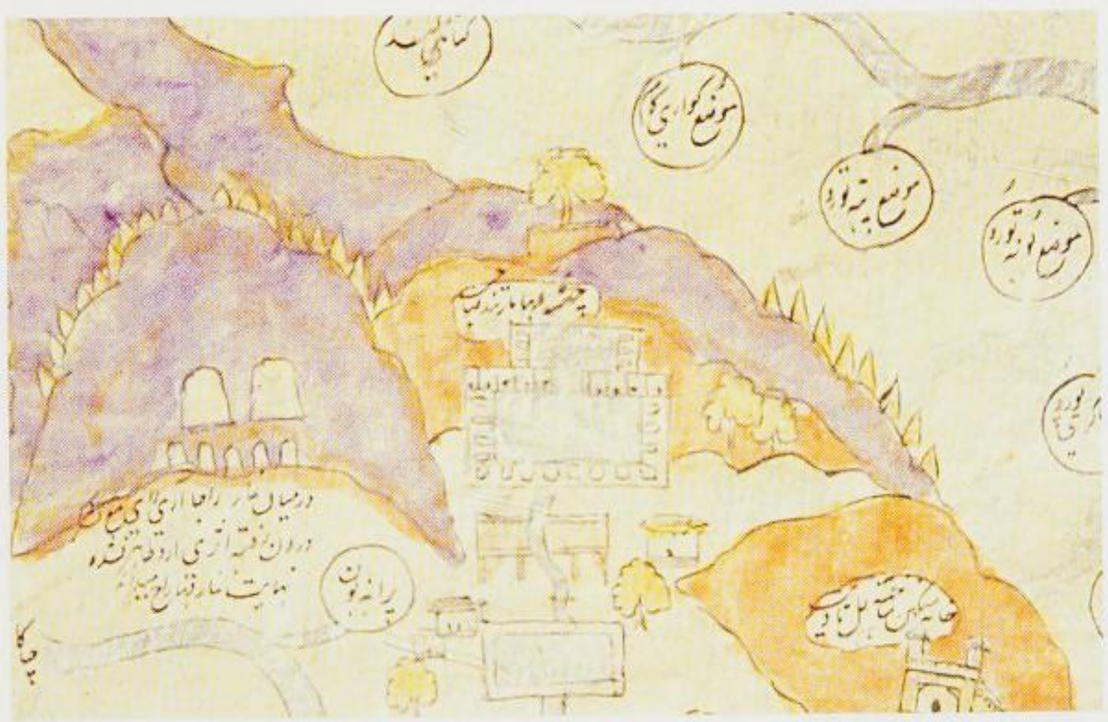
Title	Vale of Kashmir
Size	408 x 226 cm
Language	Persian
Script	Persian
Material	Cloth
Location	London: British Library, Map Room
Cat. no.	—
Bibliography	—

that Abdur Rahim claimed to have made it, when he had acquired it from somewhere. At some stage the directions were added in English, and some numbers were written beside some of the Persian legends.

There are far more roads than are shown on most other maps of Kashmir, and the trees and villages seem to have been added at random, to fill the space, rather than from survey or observation. The directions are marked, with west at the top as it is shown here. Shergarh, which must the fort of Hari Parbat, is in the centre of the lower half, beside the river Jhelum, here called Bihat. The town of Srinagar is on the other side of the river to the right, with the Dal Lake at the very bottom. All the parganas have been named, and the main towns in each. At bottom left are the parganas of Shahbad and Vernag. Two serais have been shown, with crenellated facades, left of centre in the upper part. The marshy river right of upper centre is called the Hakusar, and further to the right is the 'Old' Lake, with an island built by Sultan Zaimul Abidin.







51.9. ParganaTulab (f. 163)

51
Mihan Singh, Governor of Kashmir under Maharaja Ranjit Singh in the first third of the 18th century, requested Mir Ahmed [Jalalawad] to write a history of Kashmir. The result is the 858 page *Tarikh-i-kala Kashmir* which was, in 1889, in the Kapurthala library, then in the Archives of Patiala, and is now in the Ranjit Singh Museum in Amritsar. In the centre of this heavy volume, which has not been translated, is a section of 66 pages containing 18 single-page maps and 15 double-page maps, with 18 blank pages. It forms a complete atlas of Kashmir, with each pargana (administrative division) the subject of a map. The titles are in red cartouches at the top of each page, and the folio numbers (from right to left) are in black. At some time English page numbers have been added in pencil on the left side pages.

The maps are very detailed regarding villages and rivers, but no roads have been marked, not even tracks across the mountains. Bridges, however, have been shown; on f. 159v six are shown at close intervals over the same stream. Most of the rivers have been coloured in silver paint, a style which has been seen on other maps from Kashmir, but not elsewhere. Some large buildings are shown in elevation, e.g. on ff. 149v and 154v. On the lower half of f. 150r three figures have been drawn, two seated beside, possibly, a shrine, and one appearing to play with a ball and hoop; no other figures were noticed.

Great attention has been paid to the mountains and hills. Some of the latter are coloured orange, while the mountains are mostly in dark purple. Trees are stylised, some round and some tall and thin, which must be the poplars so frequently planted in avenues in Kashmir. Across the top of ff. 168v and 169r different kinds of flowers have been shown growing on the banks of a river.

51.1 On the right is Shahabad, with pargana Shahabad on the left (ff. 148–49).

51.2 shows the road through Vernag on the right, and pargana Barang on the left (ff. 149–50).

51.3 shows Zila Chhir on the right, and pargana Kothar on the left (ff. 150–51).

51.4 is a double-page map of pargana Ular (ff. 154–55).

51.5 is a double-page map of pargana Tadhoo (or perhaps Siddhu) (ff. 156–57).

51.6 is a double-page map of pargana Phak (ff. 158–59).

51.7 is a double-page map of pargana Lal (ff. 159–60).

51.8 has pargana Kohittam on the right and pargana Zinhgir on the left, with the large Ular Lake in the centre (ff. 161–62).

51.9 is pargana Tulab (f. 163).

51.10 is a double-page map of Tappa Utar (ff. 163–64).

51.11 is a double-page map of Mahal Machhipoorya (ff. 164–65).

51.12 is a double-page map of Tappa Hamal (ff. 165–66).

51.13 has pargana Gurdhan on the right and pargana Tilahgam on the left (ff. 167–68).

51.14 is a double-page map of pargana Bangal (ff. 168–69).

51.15 is a double-page map of pargana Nurdah (or Narwah) (ff. 169–70).

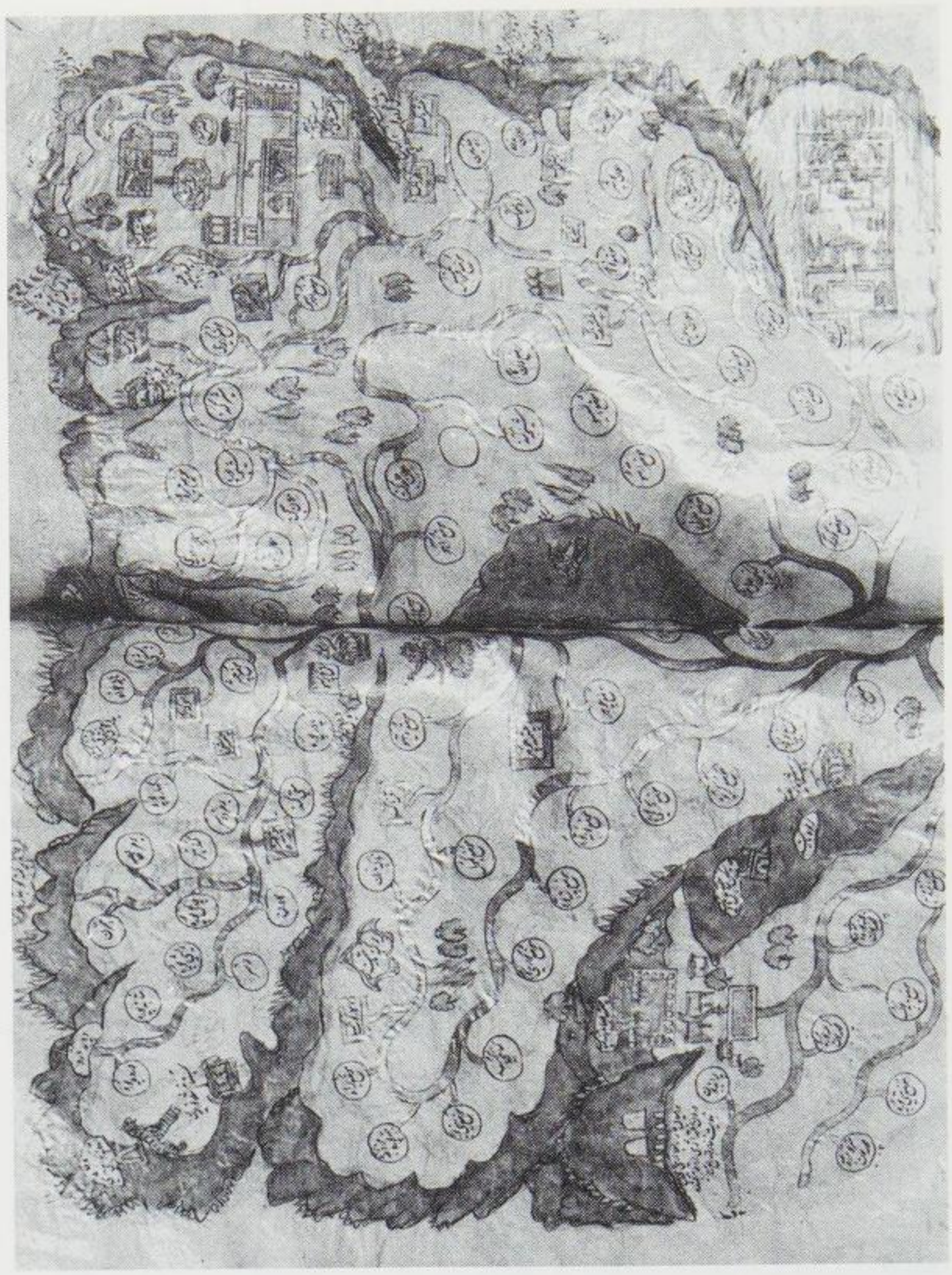
51.16 is a double-page map of pargana Nagam (ff. 173–74).

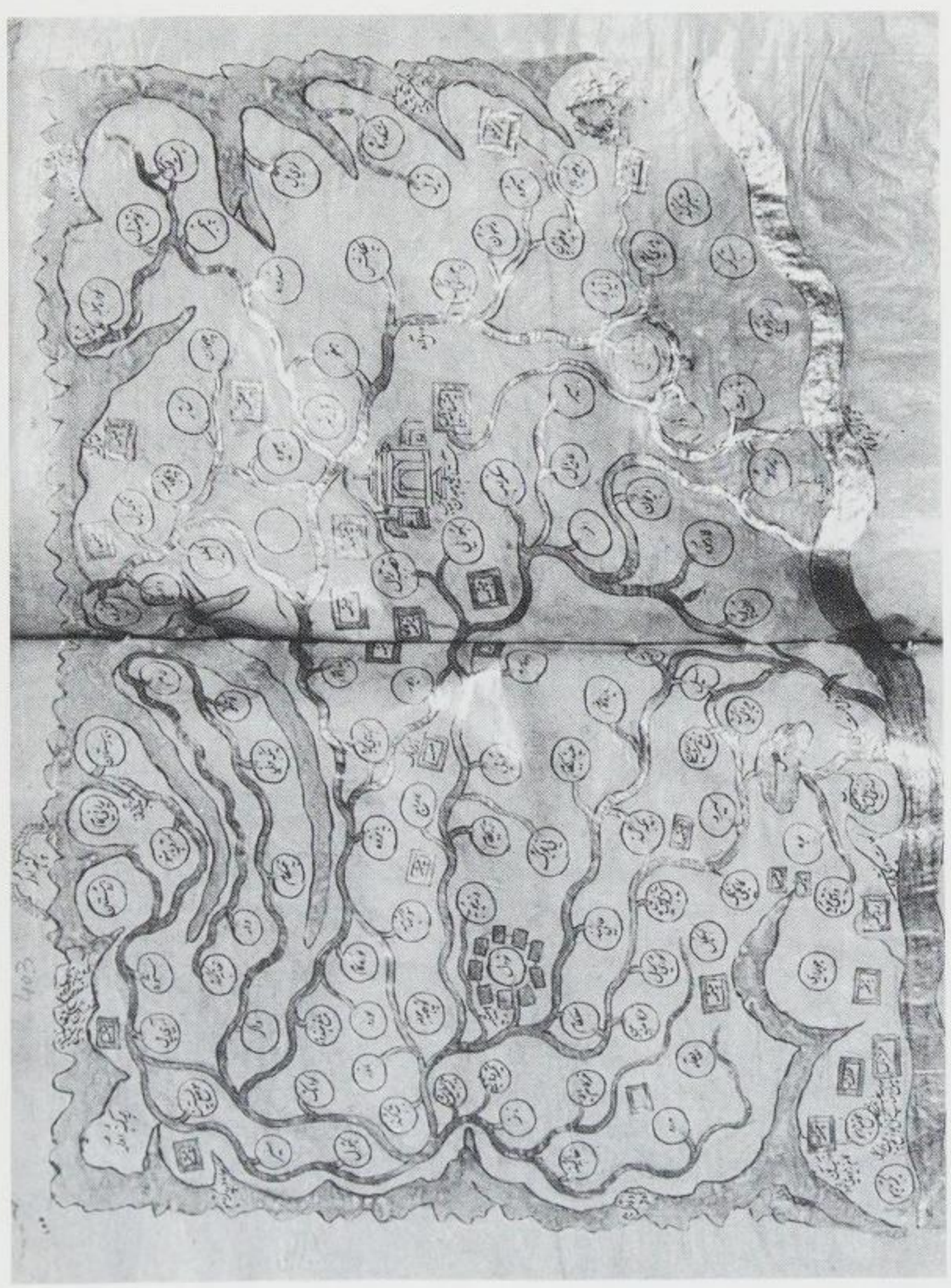
51.17 is a double-page map of pargana Batu Dadun (ff. 177–78).

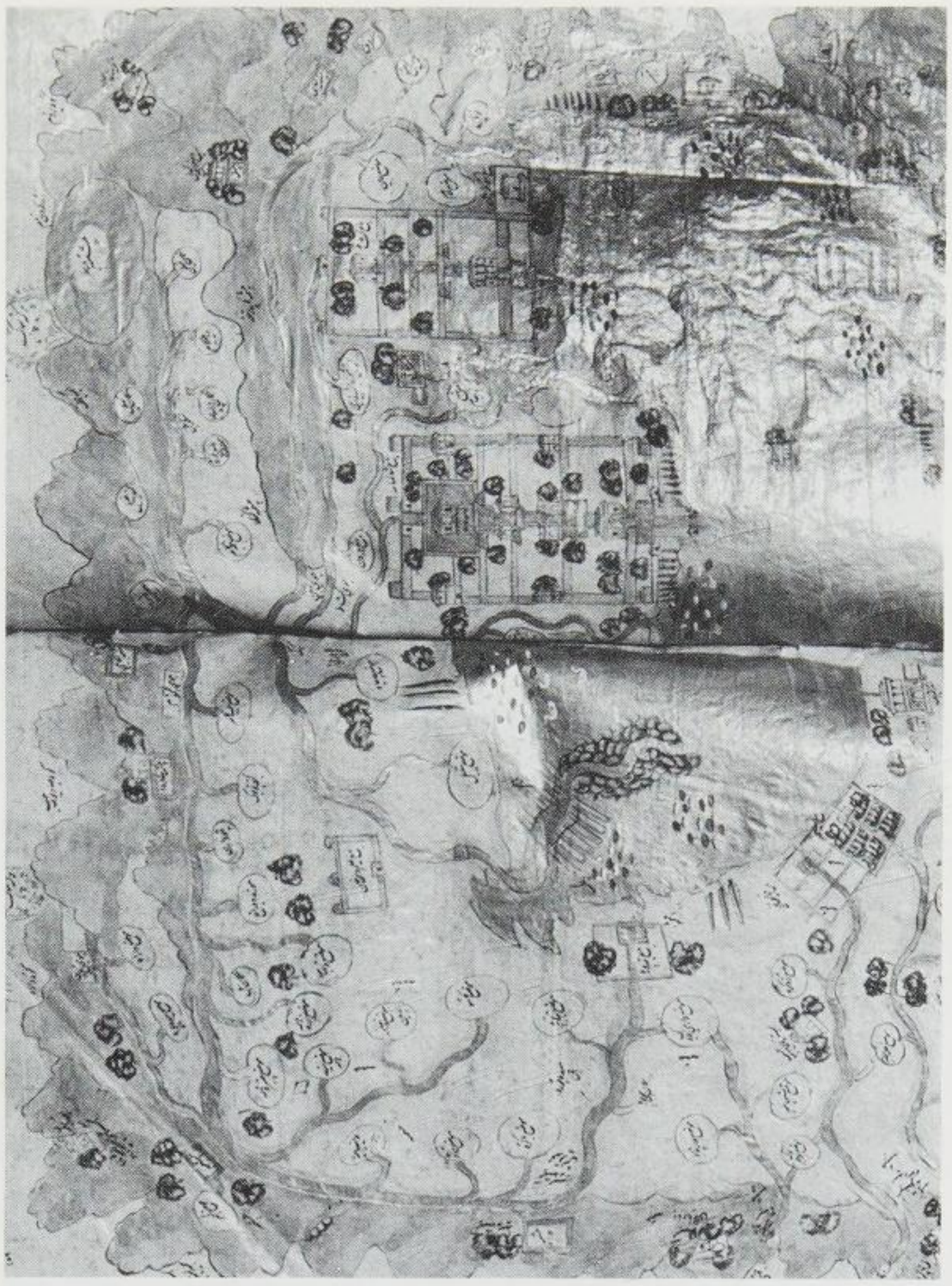
51.18 is a double-page map of pargana Natnag, probably Anantnag (ff. 180–81).

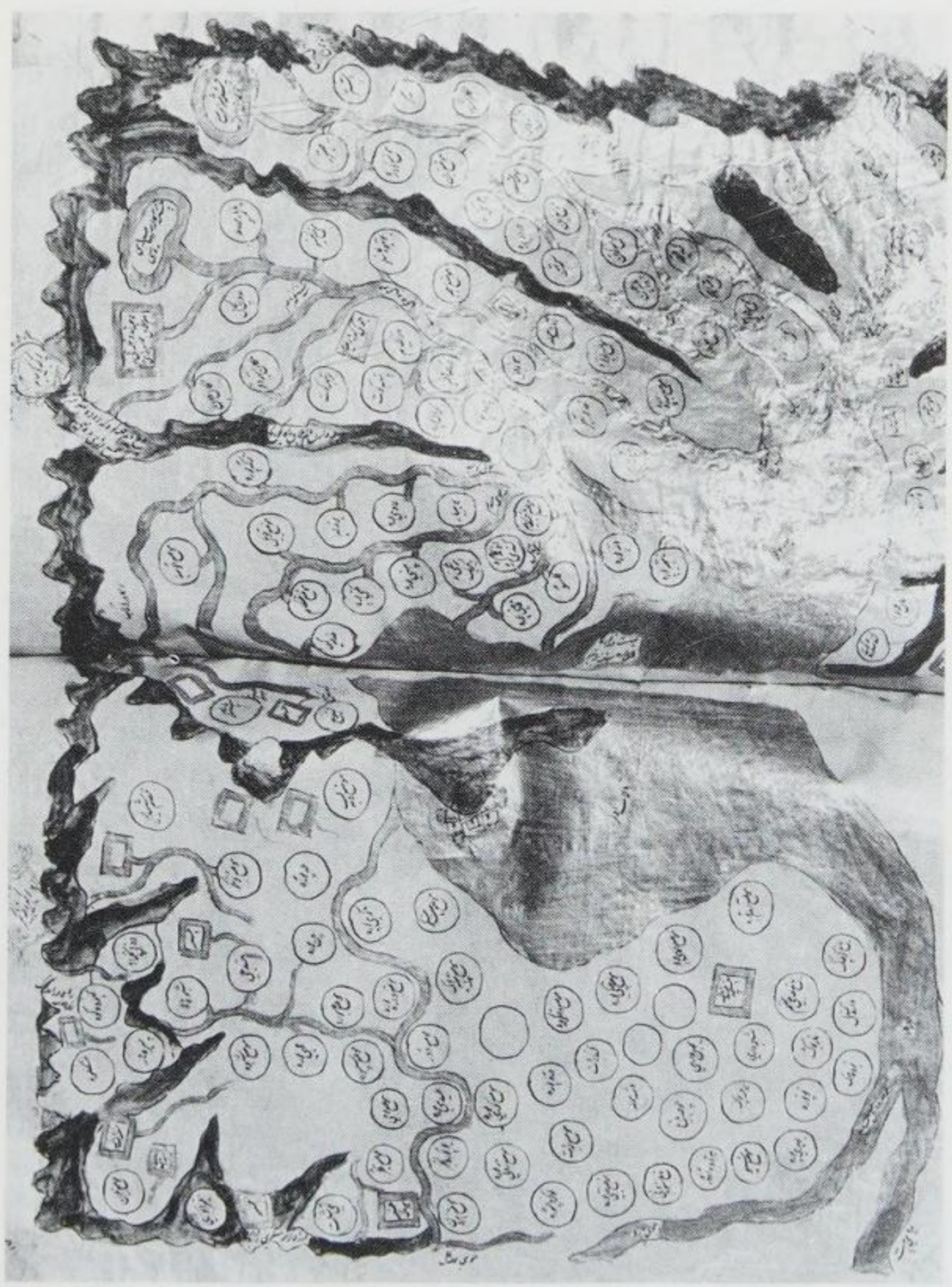
Not shown here are: f. 151, pargana Kaha Durashah; ff. 152–53, pargana Bachinpara; f. 170, pargana Jadnasu; ff. 171–72, parganas Parsupar and Najahame; ff. 174–75, pargana Achha; f. 176, pargana Raniyapur; ff. 176–77, parganas Naswara and Shukarwa. (The translations were difficult, and many of these names may be incorrect.)

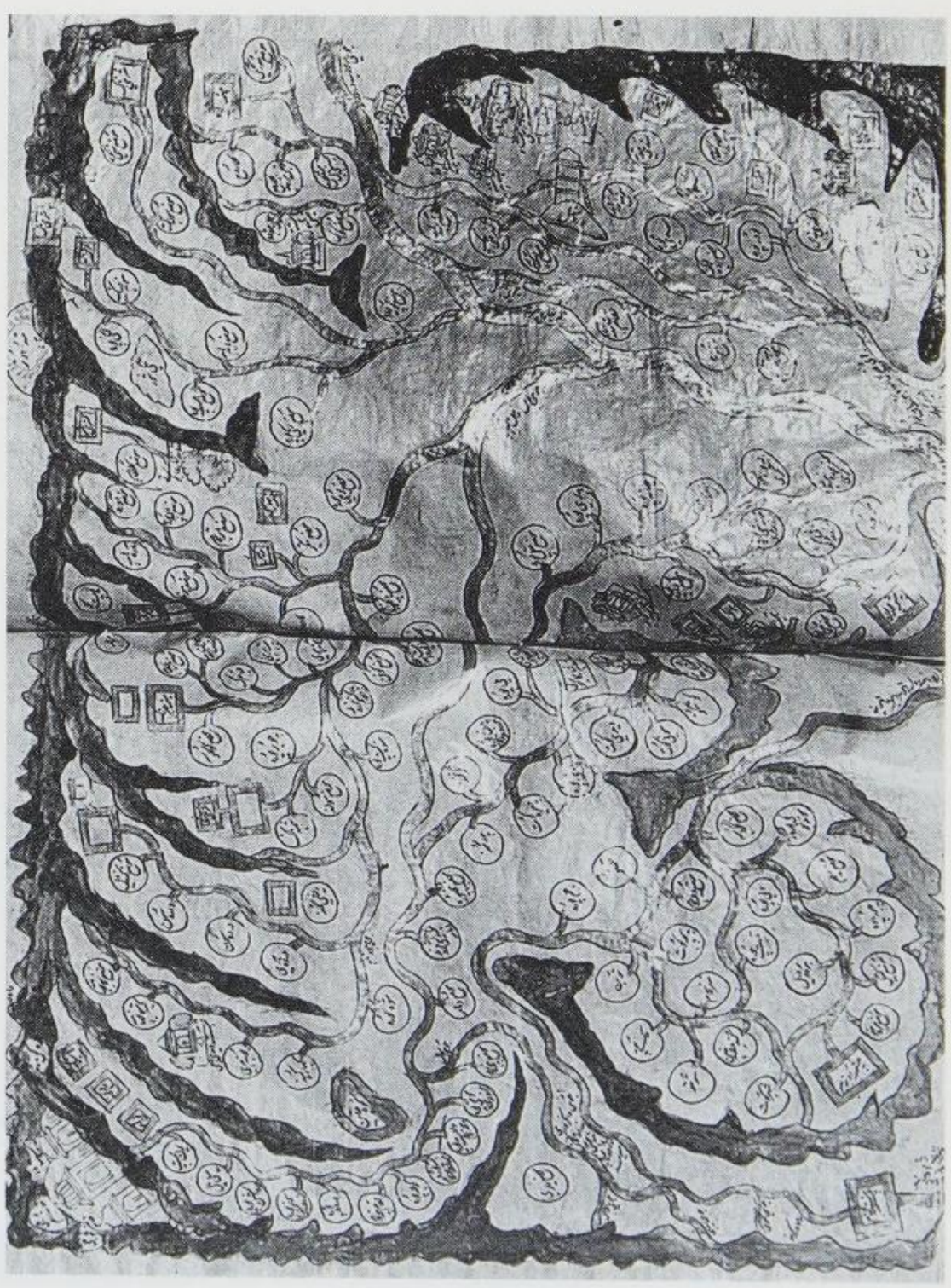
51
Title: [Maps of Kashmir parganas in *Tarikh-i-Kala Kashmir*]
Size: Each page 38 x 54 cm
Language: Persian
Script: Persian
Material: Paper
Location: Amritsar: Maharaja Ranjit Singh Museum
Cat. no.: Acc. M/829
Bibliography: *Marg*, Vol.XXX No.1

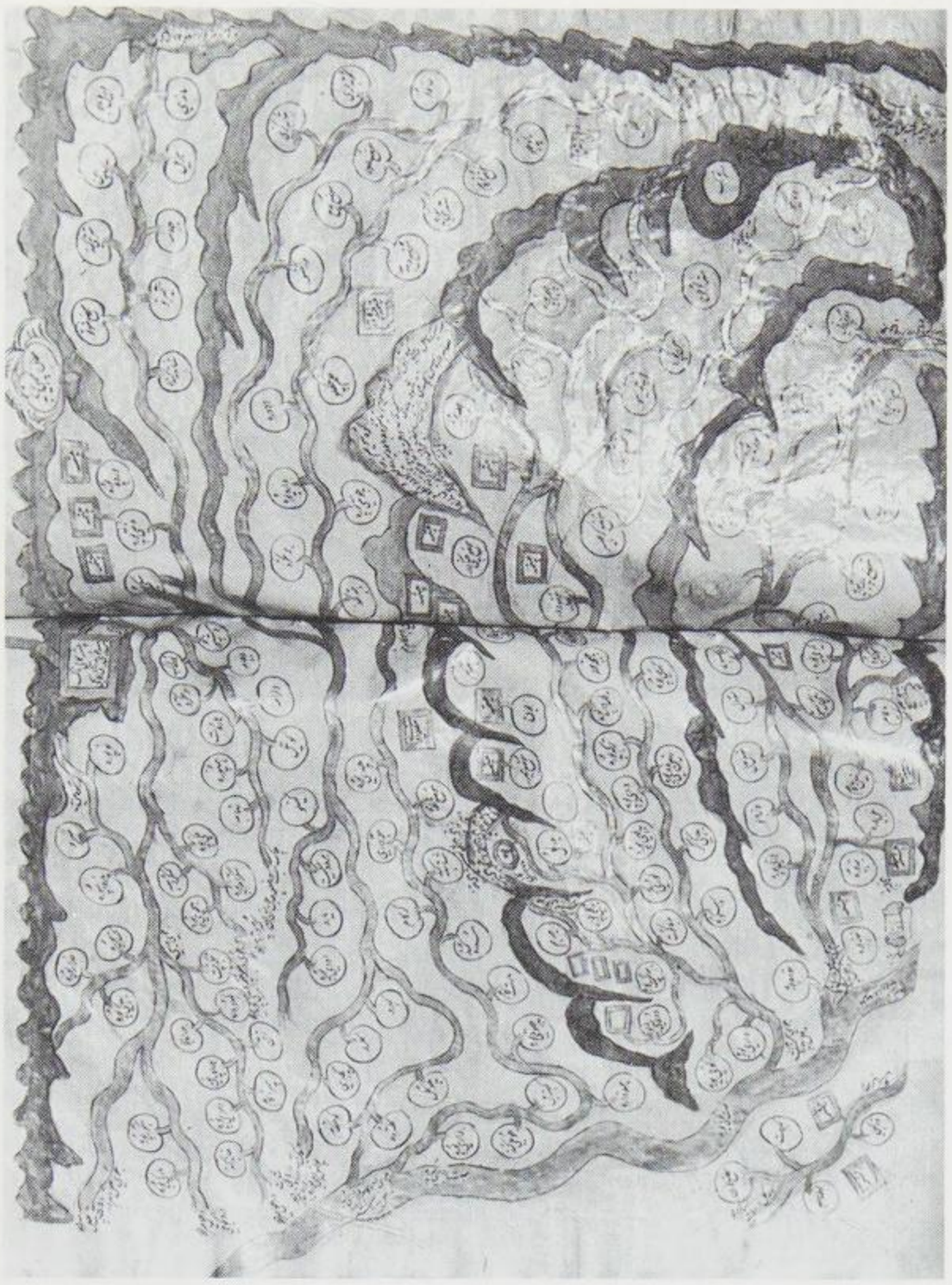


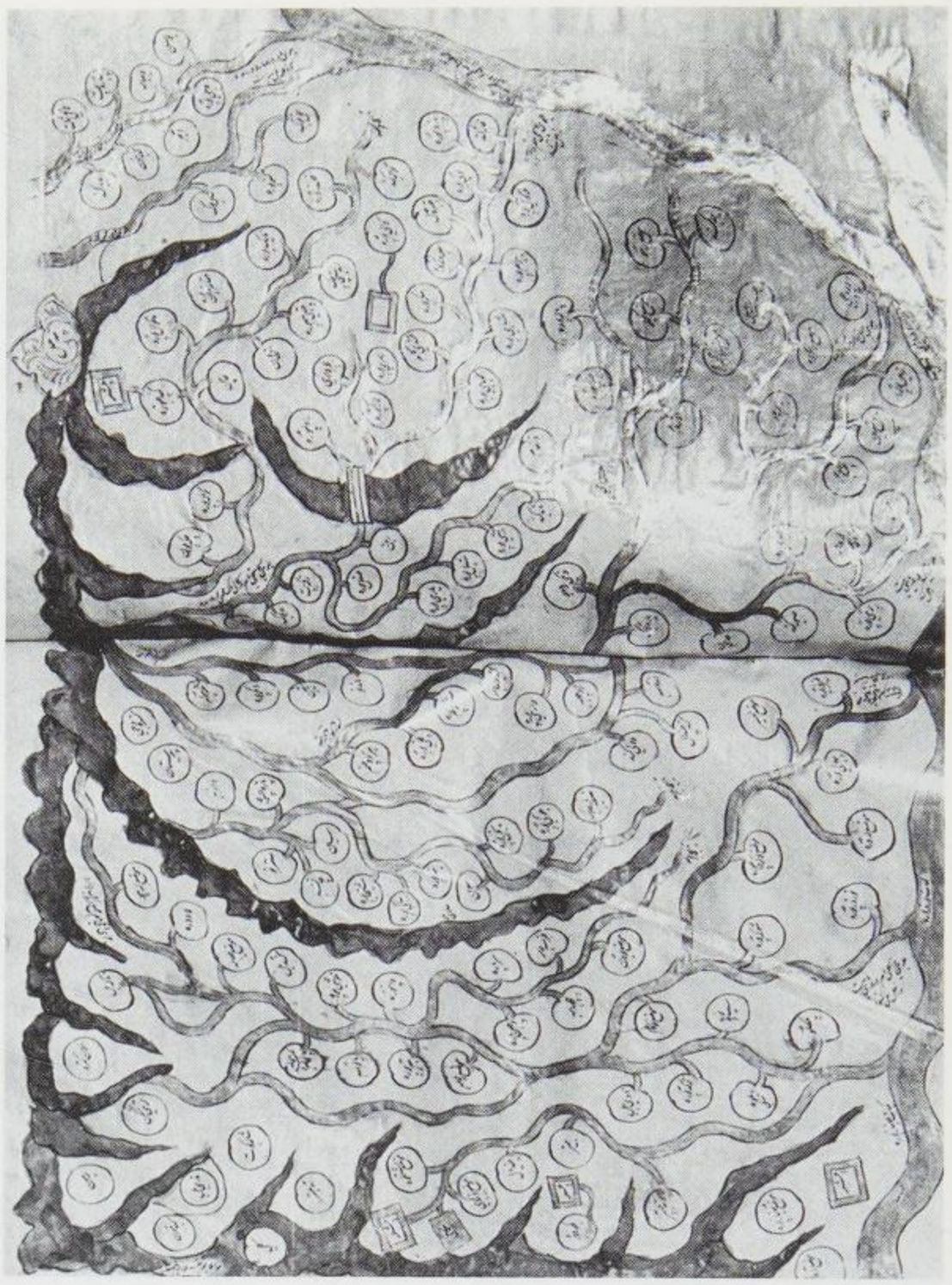


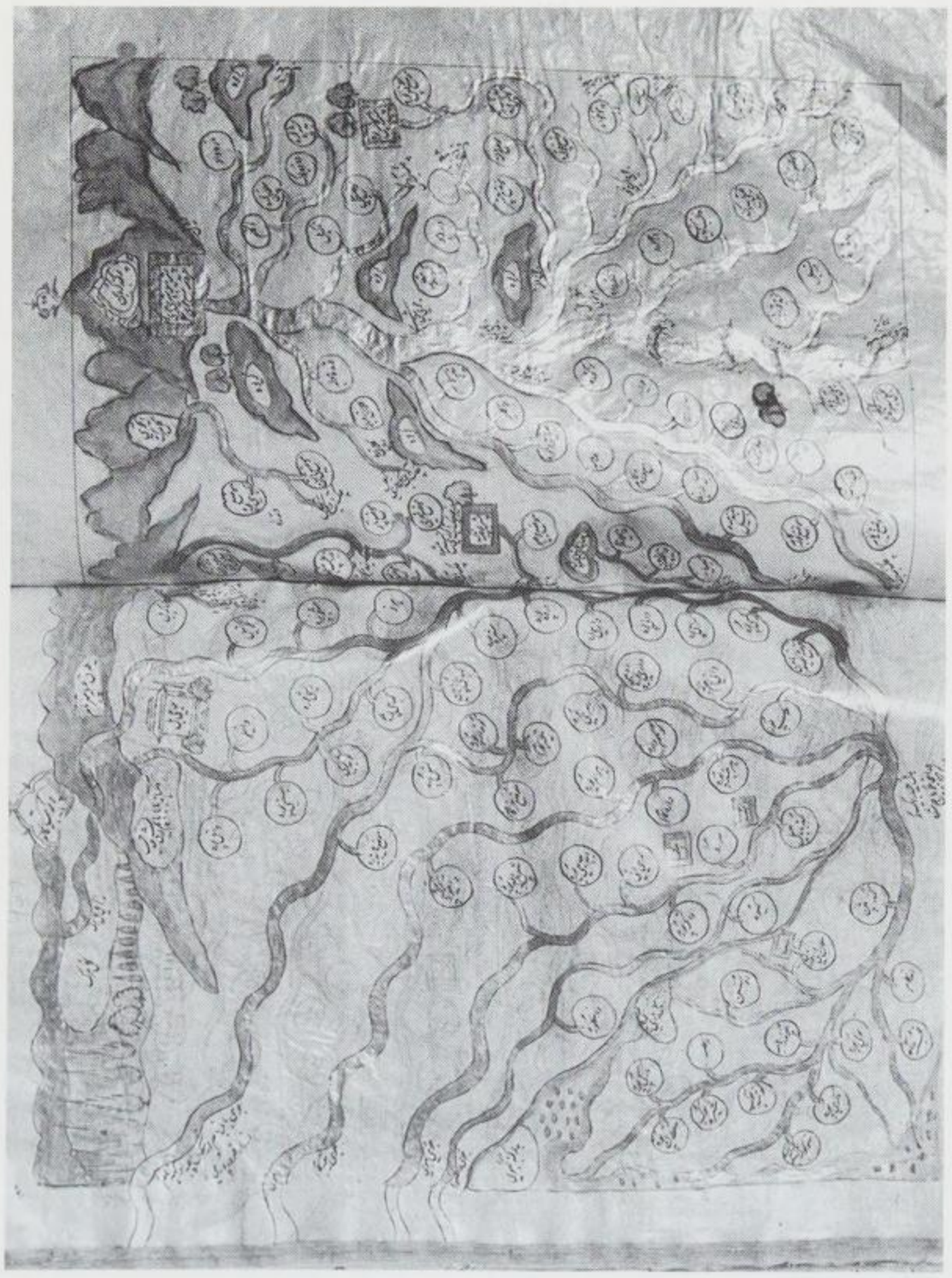


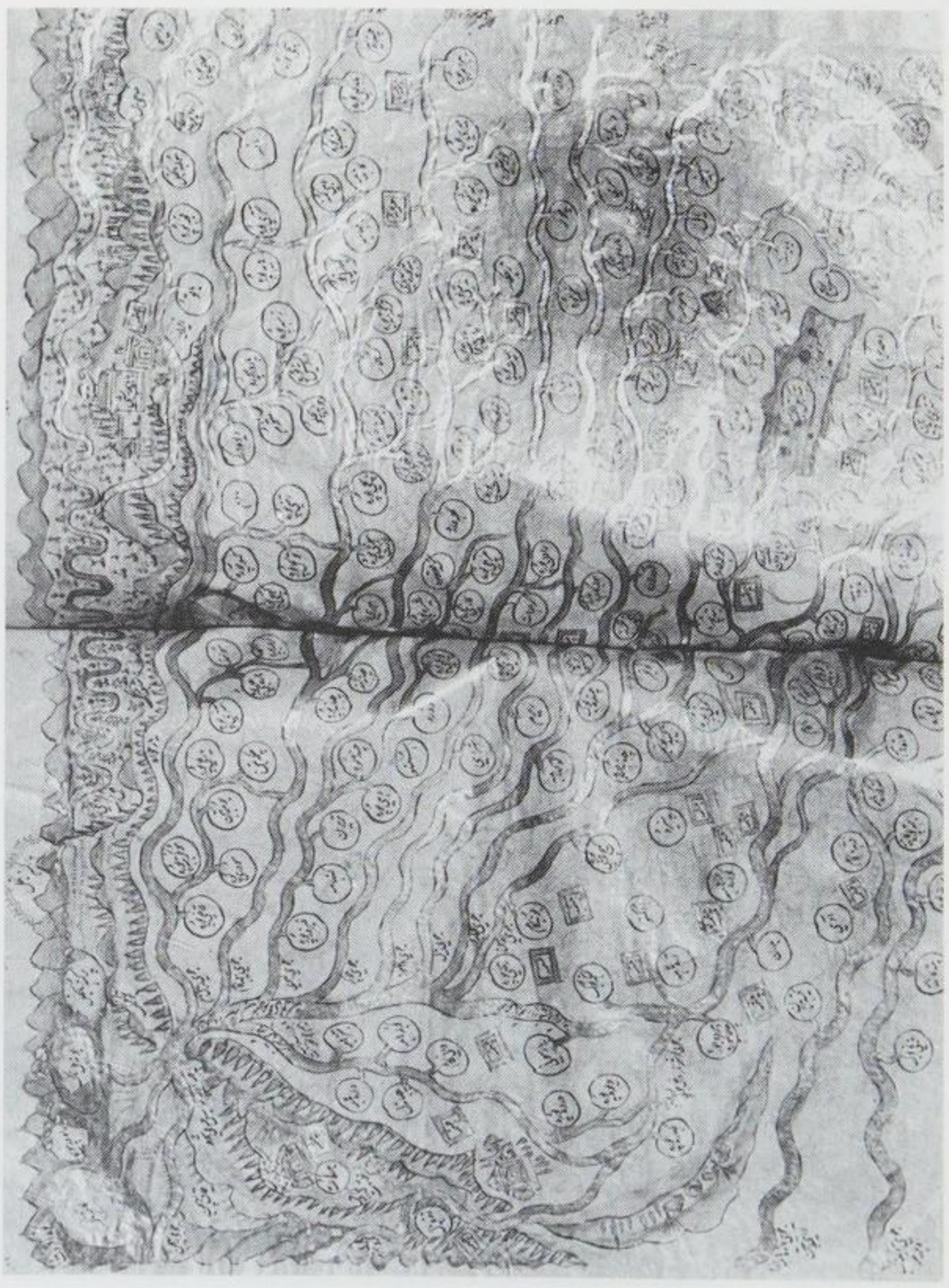


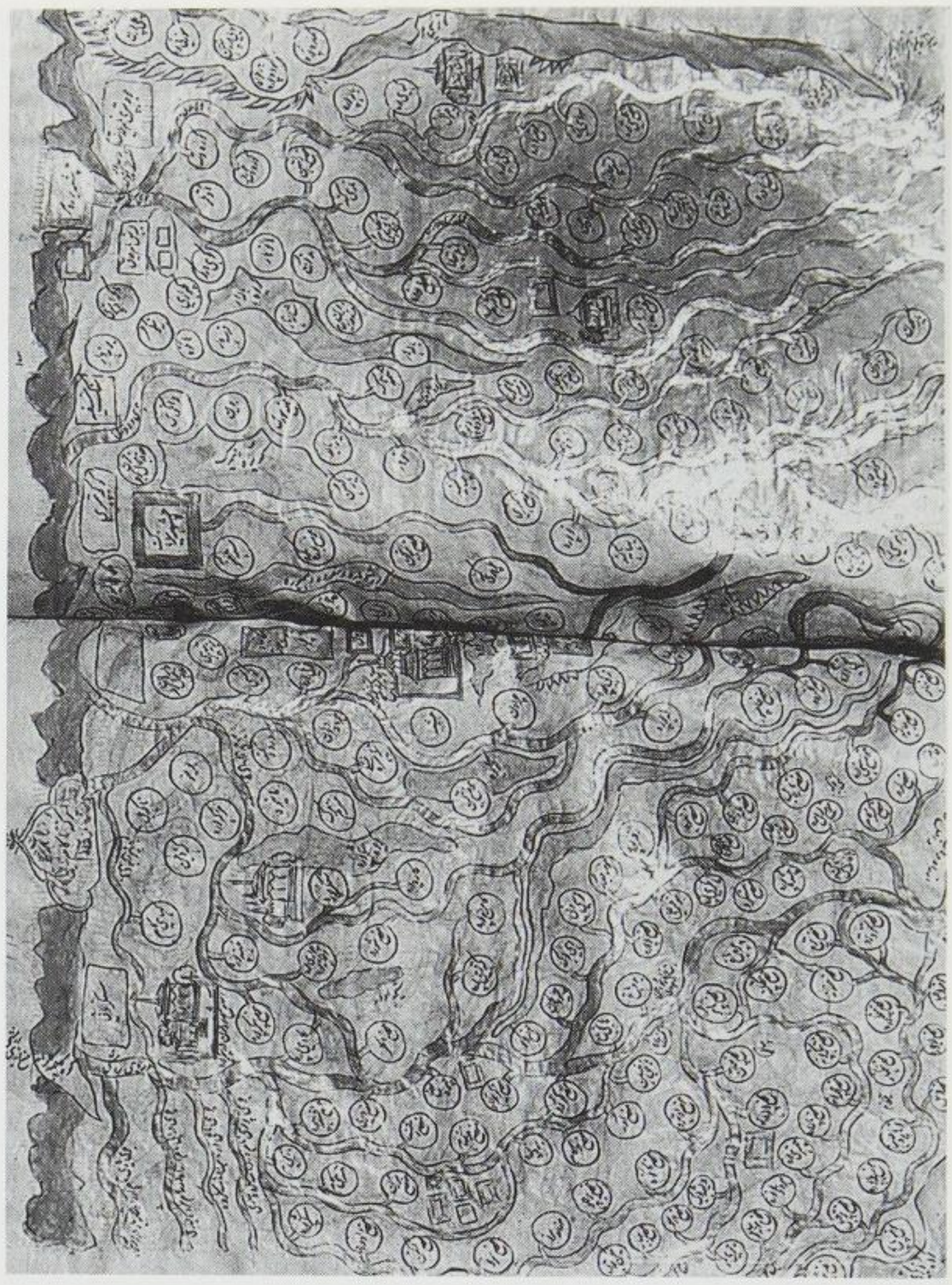


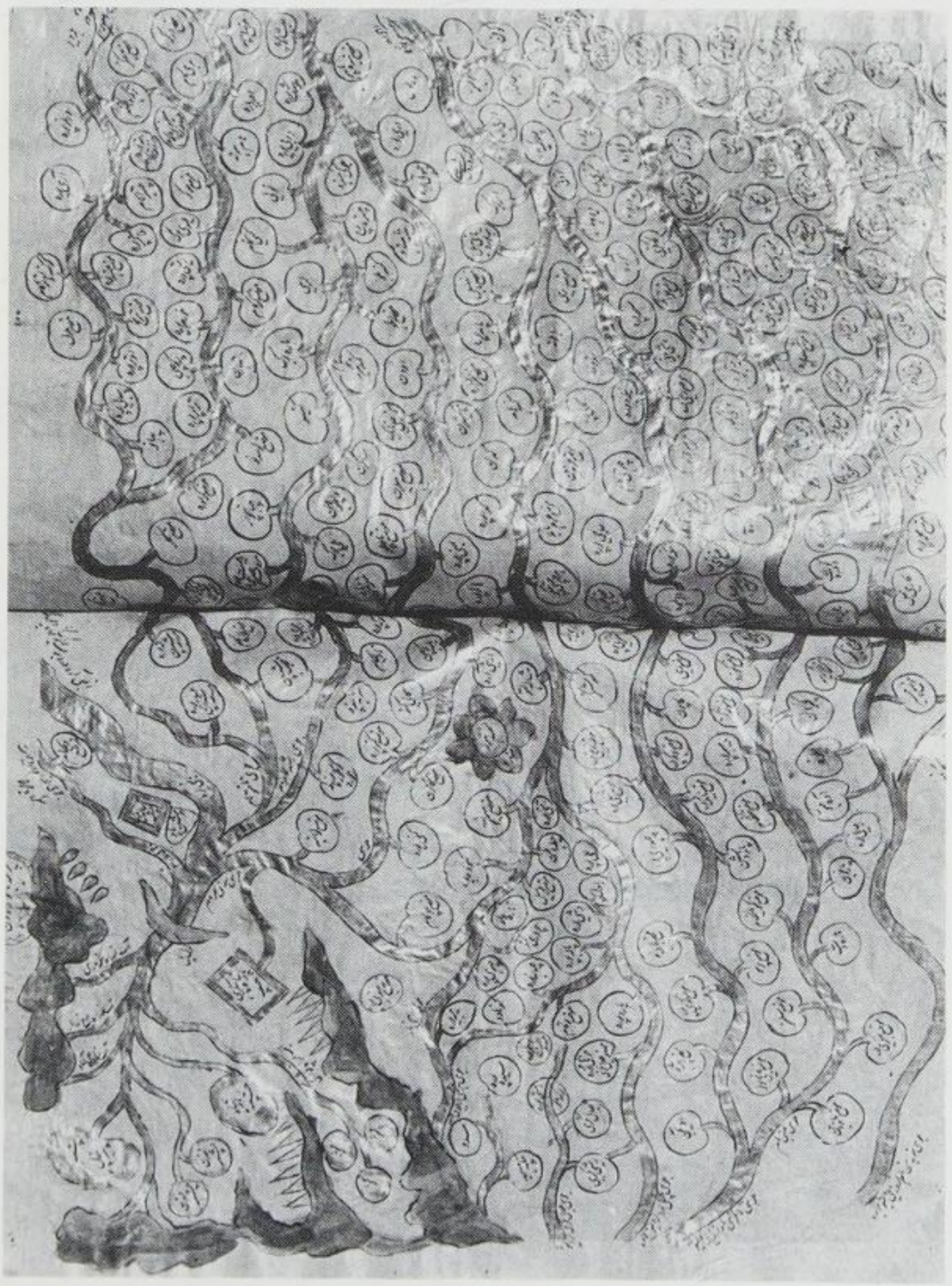


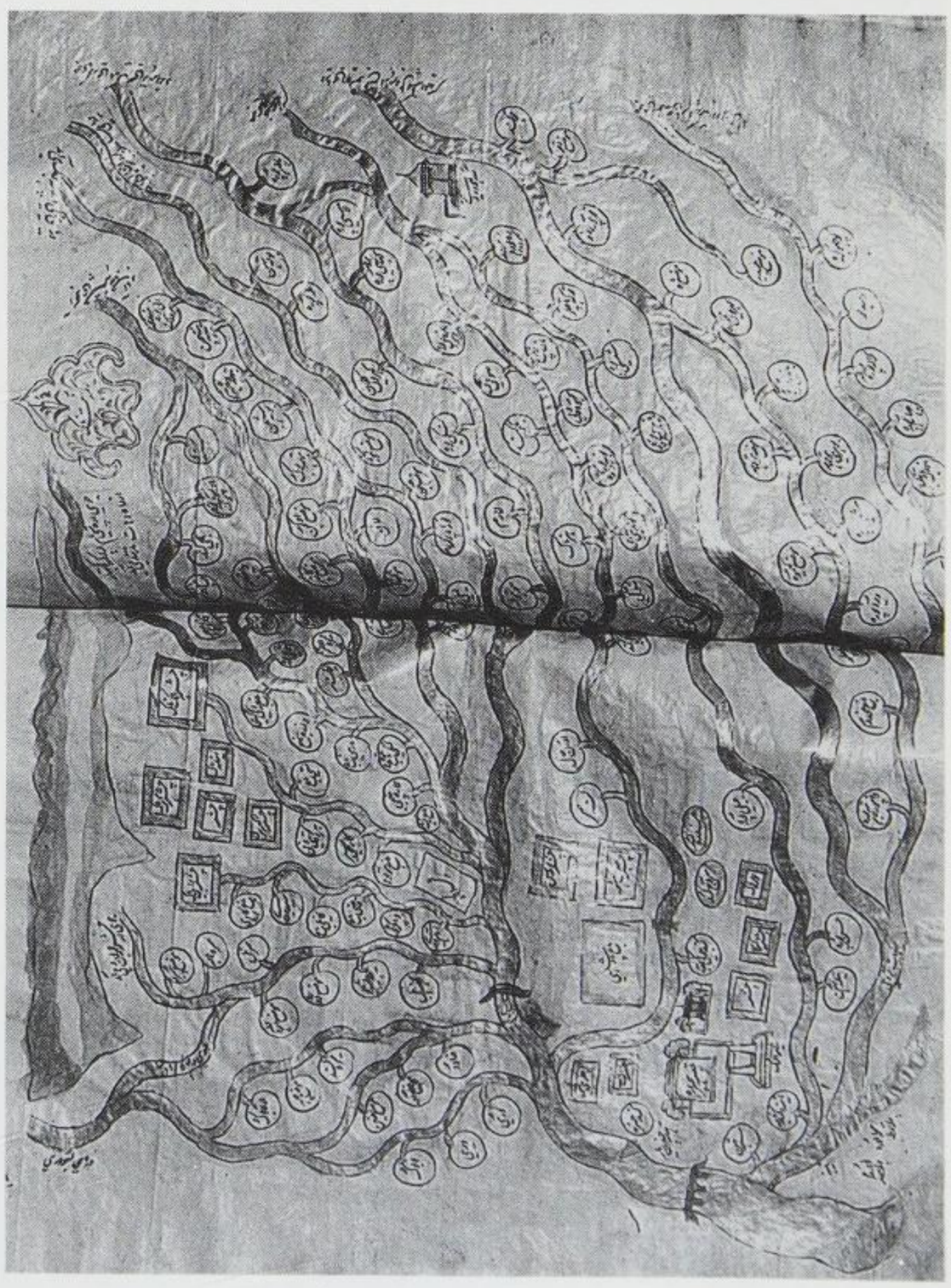








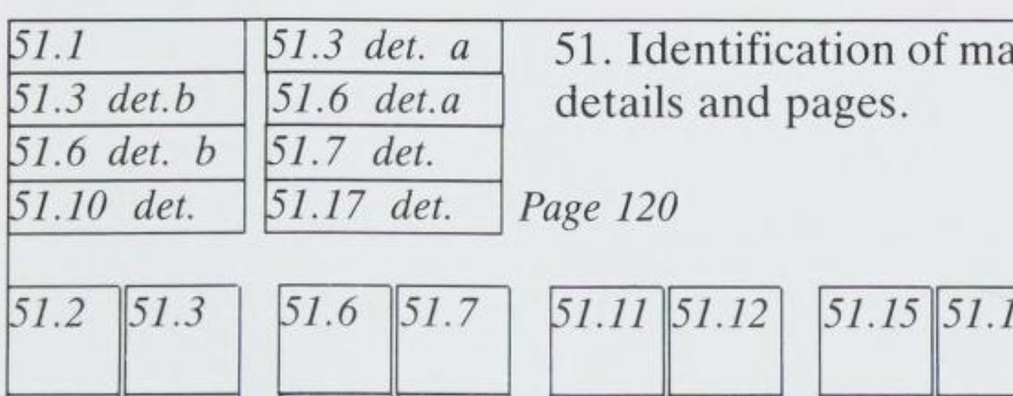




52	
Title	[Srinagar]
Size	82.5 x 63 cm
Language	Hindi and Urdu
Script	Devnagri and Persian
Material	Paper
Colours	Black, brown, grey, green, orange
Location	London: India Office Records
Cat. No.	X/1817
Bibliography	—

52
This is a very crude sketch map of Srinagar, with none of the fine quality of drawing that has been seen in other maps of Kashmir. It seems to be unfinished, or perhaps made as a preparation for a proper map. The pen lines are fine, but clumsy brown paint has been added. The water of the river and lakes is grey, and the gardens at the lower right are green. Orange-coloured Hindi lettering has been added quite neatly. Here and there some names have been added in Urdu.

The Dal Lake is very small in this map, hardly distinguishable except for the boat on it, and the road across. The Jhelum river is very wide, and the bridges have been shown in great detail.



51. Identification of map details and pages.

53, 54 and 55
In the Sardar Pratap Singh Museum, Srinagar, there are some loose sheet maps with no textual material to accompany them, and no information about them. It was not possible to have them translated, and thus learn more about them.

No. 53 shows an elaborate river system with grey and silver paint used for the water.

No. 54 can be recognised as Srinagar. Hari Parbat fort is prominently shown in black and white on the bank of the Jhelum. The Dal Lake is again very small, but recognisable by the road across it. Shalimar Bagh is in the centre, instead of being at one end.

No. 55 is a town in a valley. (Other maps in the same folder have not been illustrated here.)

There are more maps of Srinagar than of any other town in India. This may be because it remained difficult of access to Europeans for longer, therefore the idea of maps was present long before the British surveyors came to draw them, or because the climate enabled more maps to survive, or possibly because the two centrally located hills, the Hari Parbat and the Shankaracharya, made map-making a comparatively easy task. They require detailed study, now that so many of them are known, to discover the sequence of their production, and to see how the town and its surroundings have changed over the last two centuries.

56
According to the Museum curator, this shawl was embroidered by Gulam Mohammed Kulu as a gift for Maharaja Ranjit Singh and it took him 37 years to stitch, 1819 to 1856. In the meantime the Maharaja was dead, and the shawl remained in Kashmir instead of being taken away to Lahore.

There is no record of the original drawing from which the shawl was stitched, nor of where the idea arose of embroidering maps on shawls. Several are now known to have been made, and even one in English as a gift for Queen Victoria.

Unfortunately the shawl is hung behind glass, without proper lighting, and no photograph was available. This very poor detail is included in order to have the shawl on record.

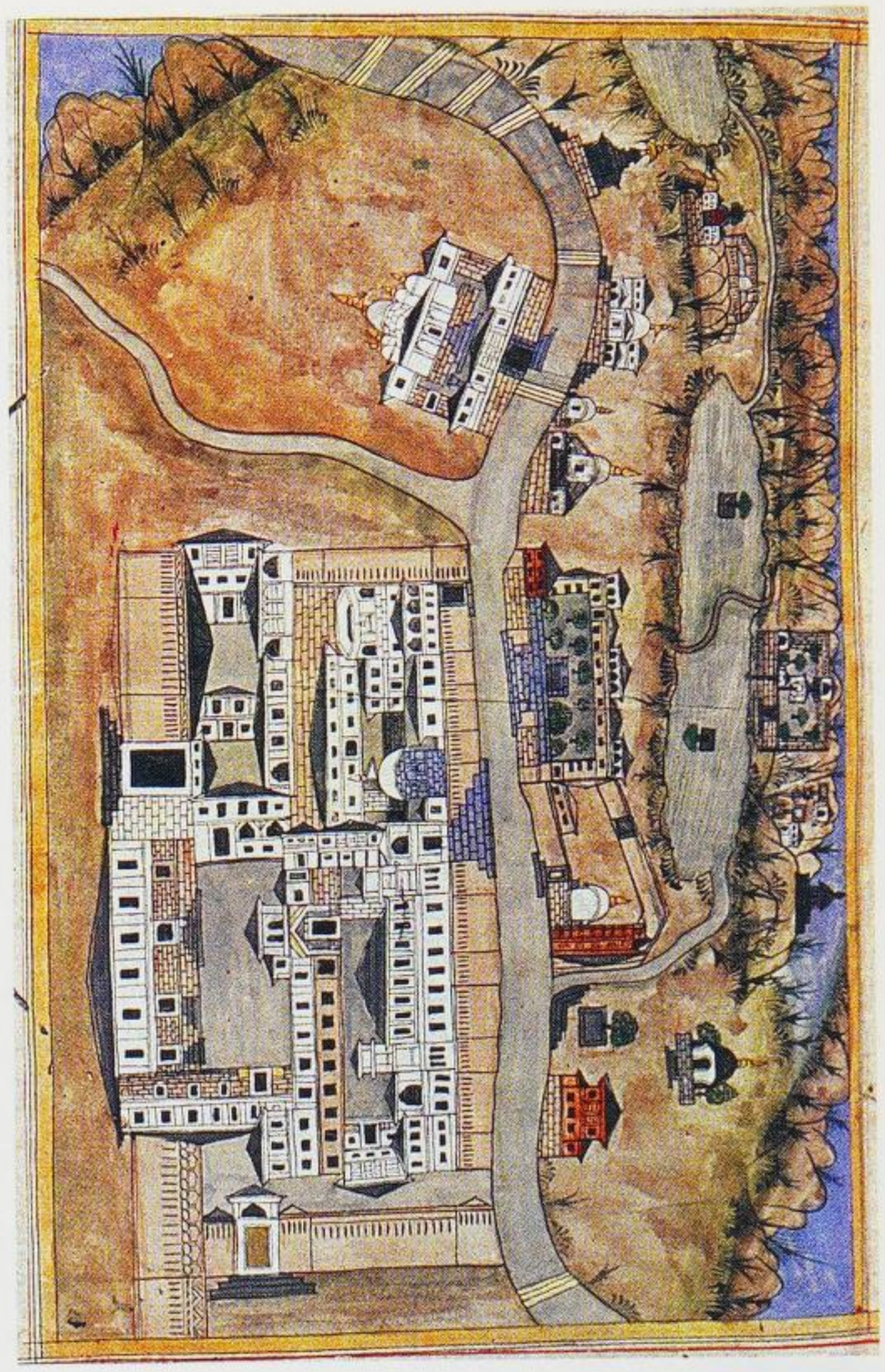
53	
Title	[Part of Kashmir]
Size	38 x 69 cm
Language	Hindi
Script	Devnagri
Material	Paper
Location	Srinagar: Sardar Pratap Singh Museum
Cat. no.	2063/107
Bibliography	—

54	
Title	[Srinagar?]
Size	37 x 68 cm
Language	Hindi
Script	Devnagri
Material	Paper
Location	Srinagar: Sardar Pratap Singh Museum
Cat. no.	2063
Bibliography	—

55	
Title	[A town in Kashmir?]
Size	64 x 69 cm
Language	—
Script	—
Material	Paper
Location	Srinagar: Sardar Pratap Singh Museum
Cat. no.	2063/106
Bibliography	—

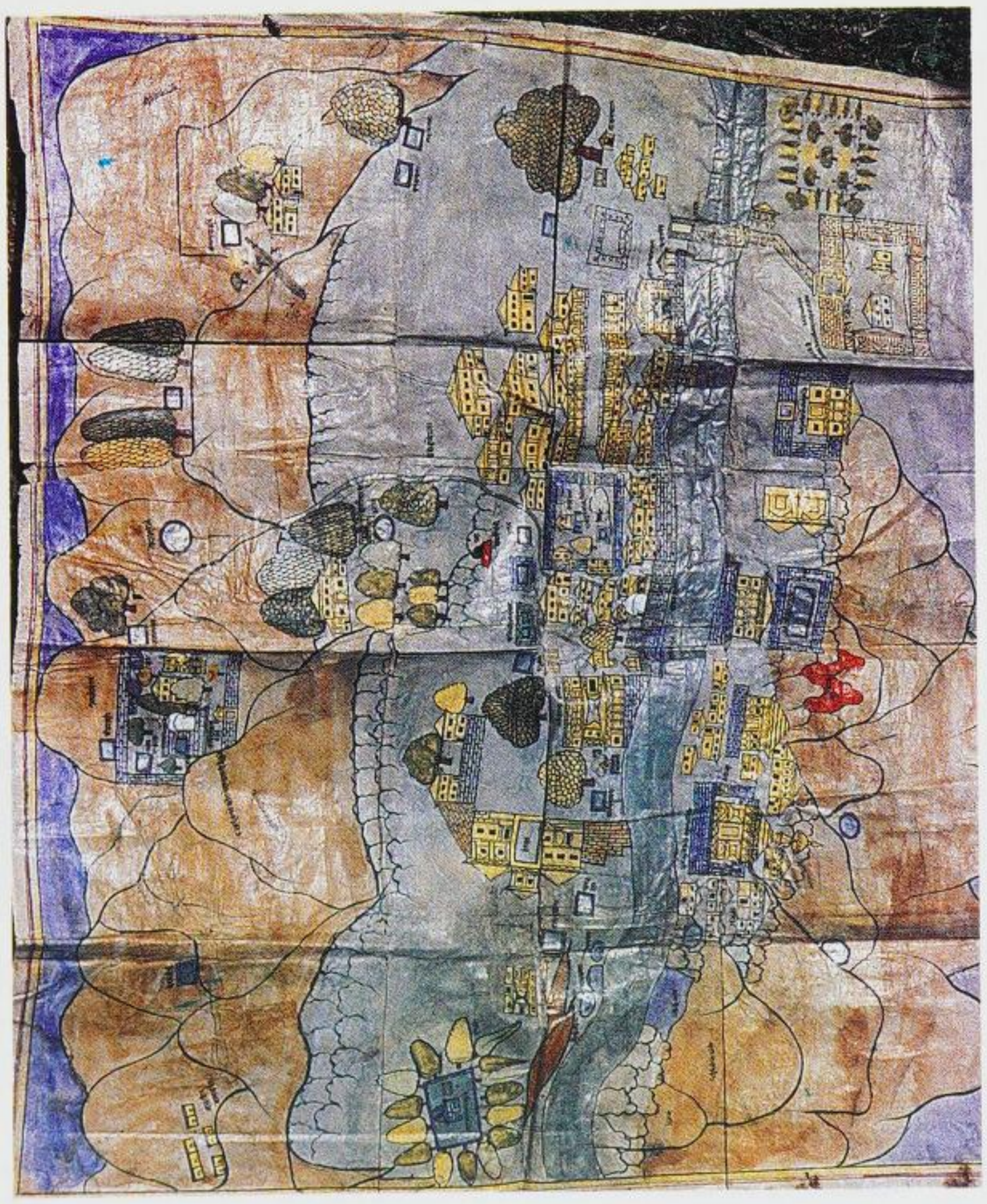
56	
Title	[Kashmir]
Size	?
Language	?
Script	?
Material	Embroidered on cloth
Location	Srinagar: Sardar Pratap Singh Museum
Cat. no.	—
Bibliography	—

53

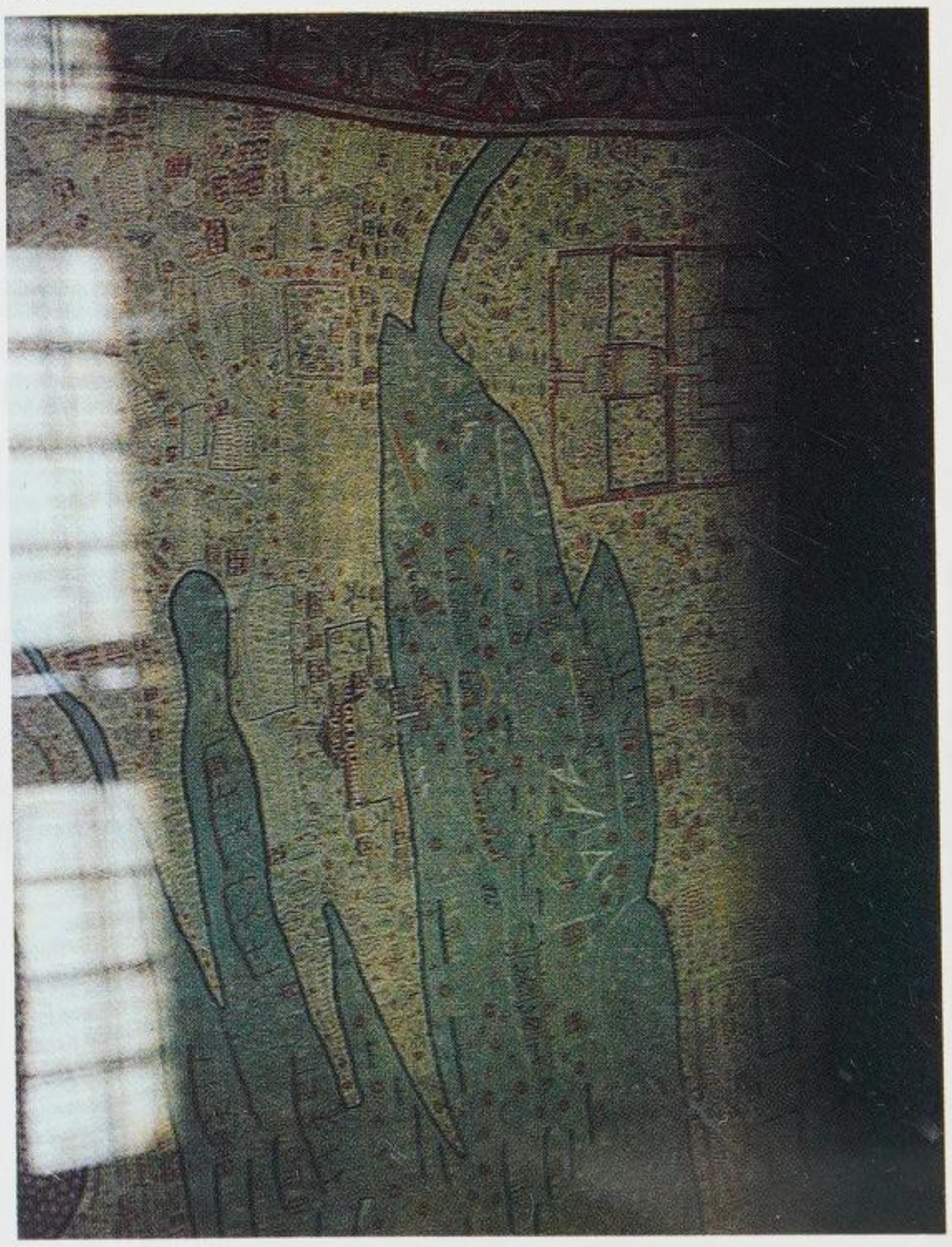


54

55



56



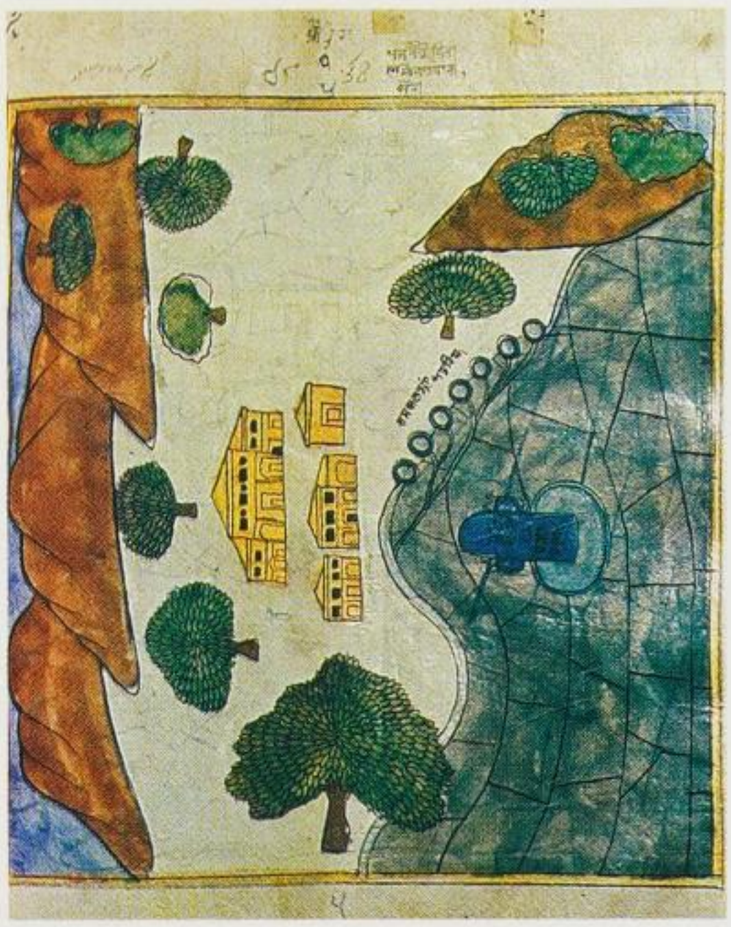
57
This shawl was made some time in the 19th century. Whether the embroidered map made for Ranjit Singh [56] was the first, and then the idea was copied, or whether the demand came first from Europe has not been established. The woollen shawls of Kashmir were widely admired in Europe.

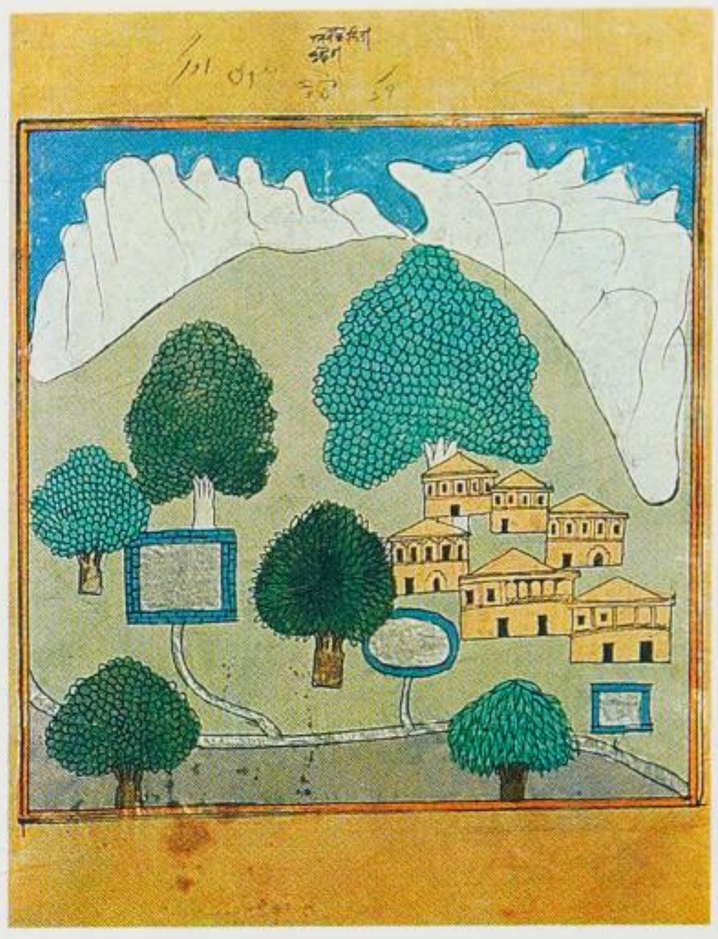
58 and 59
These paintings of the *tirthas* (holy springs) of Kashmir were probably prepared under the leadership of Pandit Sahibram, who was commissioned by Maharaja Ranbir Singh to prepare a descriptive survey of all the ancient Tirthas of Kashmir. As Aurel Stein wrote: 'For this purpose a staff of Pandits was placed

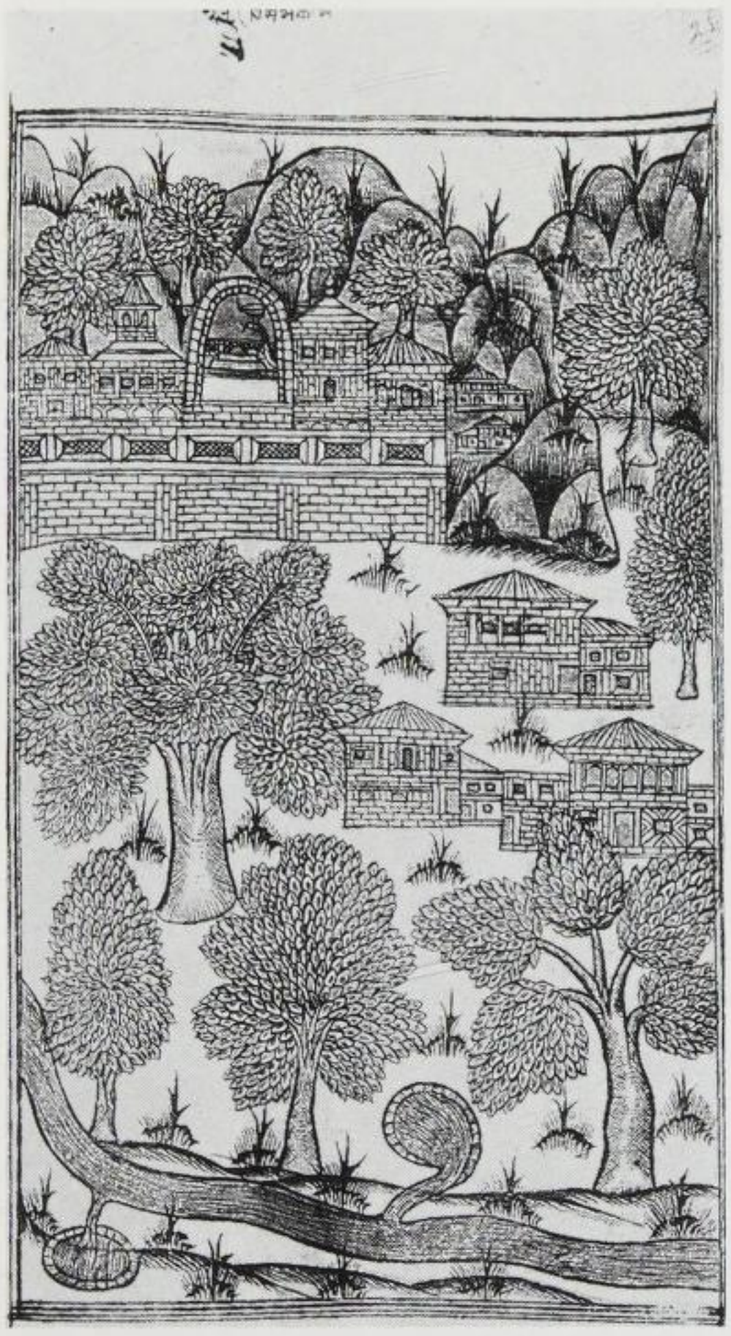
57	
Title	[Kashmir]
Size	230 x 189 cm
Language	Persian
Script	Persian
Material	Embroidered on cloth
Location	London: Victoria and Albert Museum
Cat. no.	I. S. 31. 1970
Bibliography	*Magazine of Art*, 1901, pp. 452–53; Irwin in *The Kashmir Shawl*

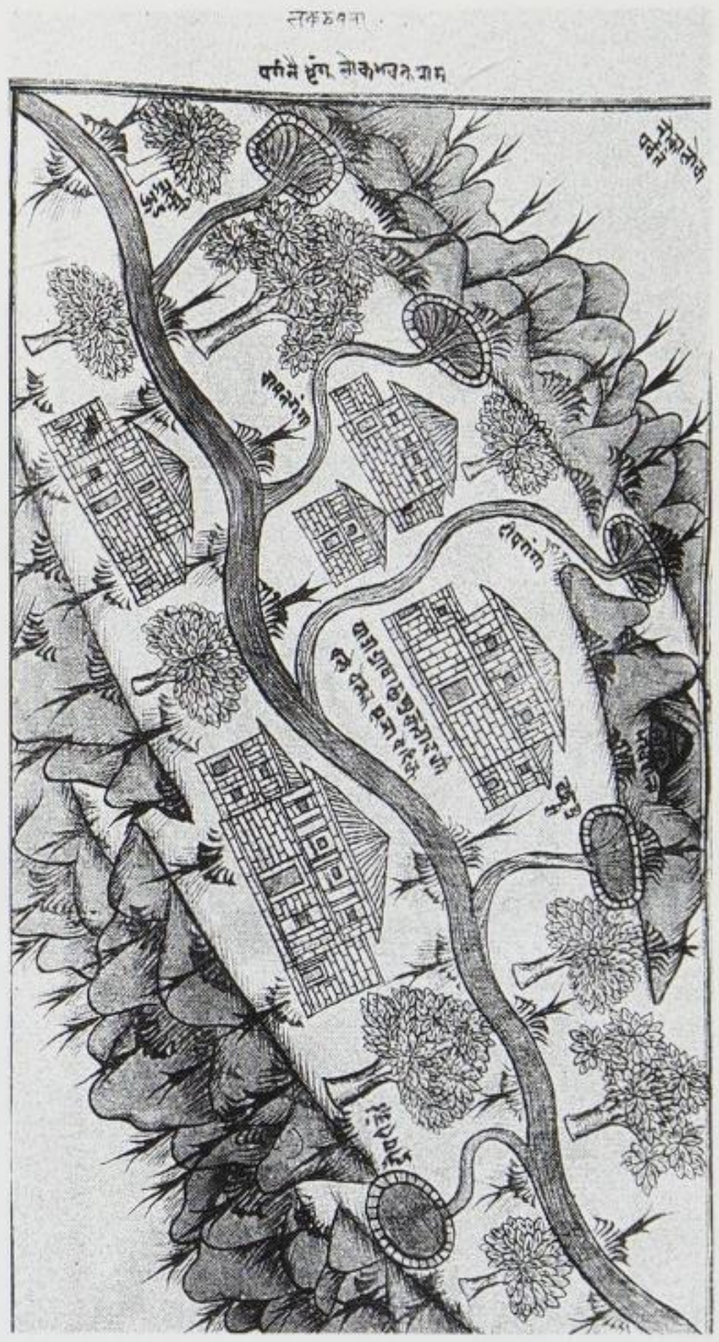
58 and 59	
Title	[Tirthas in Kashmir]
Size	58: approx. 32 x 36.5 cm 59: approx. 21 x 35 cm
Languages	Various, including Nepali, Hindi, Persian,, Sanskrit and Bengali
Material	Paper
Location	Srinagar: Sardar Pratap Singh Museum
Cat. nos.	58: 2063; 59: 2066
Bibliography	—

58. Tirtha maps from Kashmir.









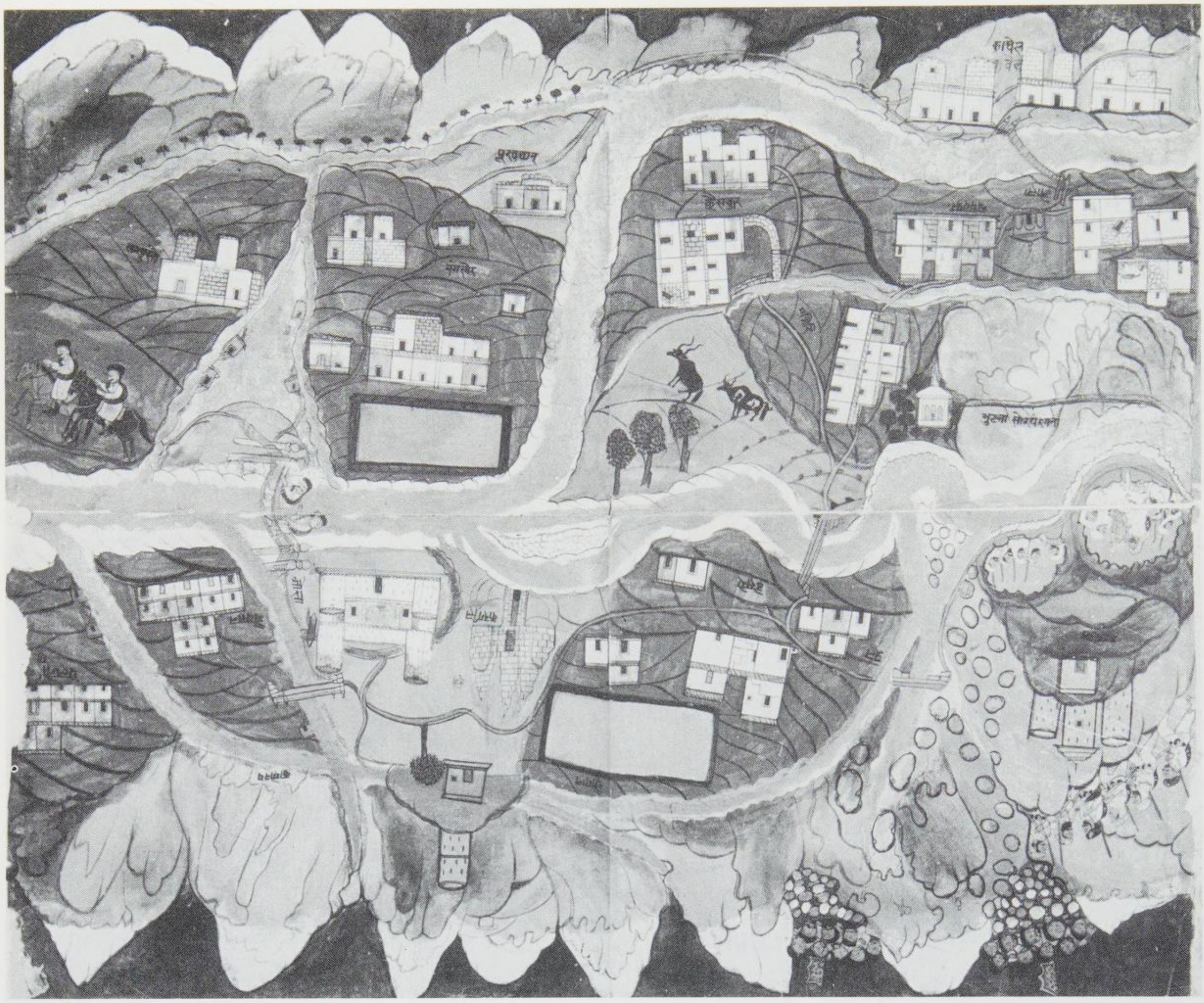
59. *Uncoloured tirtha maps.*

at his disposal . . . The large work which was to be prepared on the basis of these materials, was never completed.' (*Memoir*, p. 56)

Pandit Sahibram died in 1872. He was 'undoubtedly the foremost among Kashmerian Sanskrit scholars of the last few generations' (Stein, ibid). His elder son Dayaram had 'much valuable information on the ancient geography of Kashmir' (Bühler, *Detailed Report of a Tour in Search of Sanskrit MSS*, p. 4). Sahibram's younger son Damodar was the chief teacher in the Maharaja's school. They lived in the Abakadal suburb of Srinagar. A recent attempt to trace the family was unsuccessful.

Only a few of the tirtha maps have been reproduced here; altogether there are over 250. Most of them have the name of the tirtha in Nepali, written in Devnagri, and a few have it repeated in Persian. The coloured maps are in two bound volumes containing 105 and 61 maps [58], and a third contains 72 uncoloured maps, with very detailed drawing [59]. All are on handmade local paper.

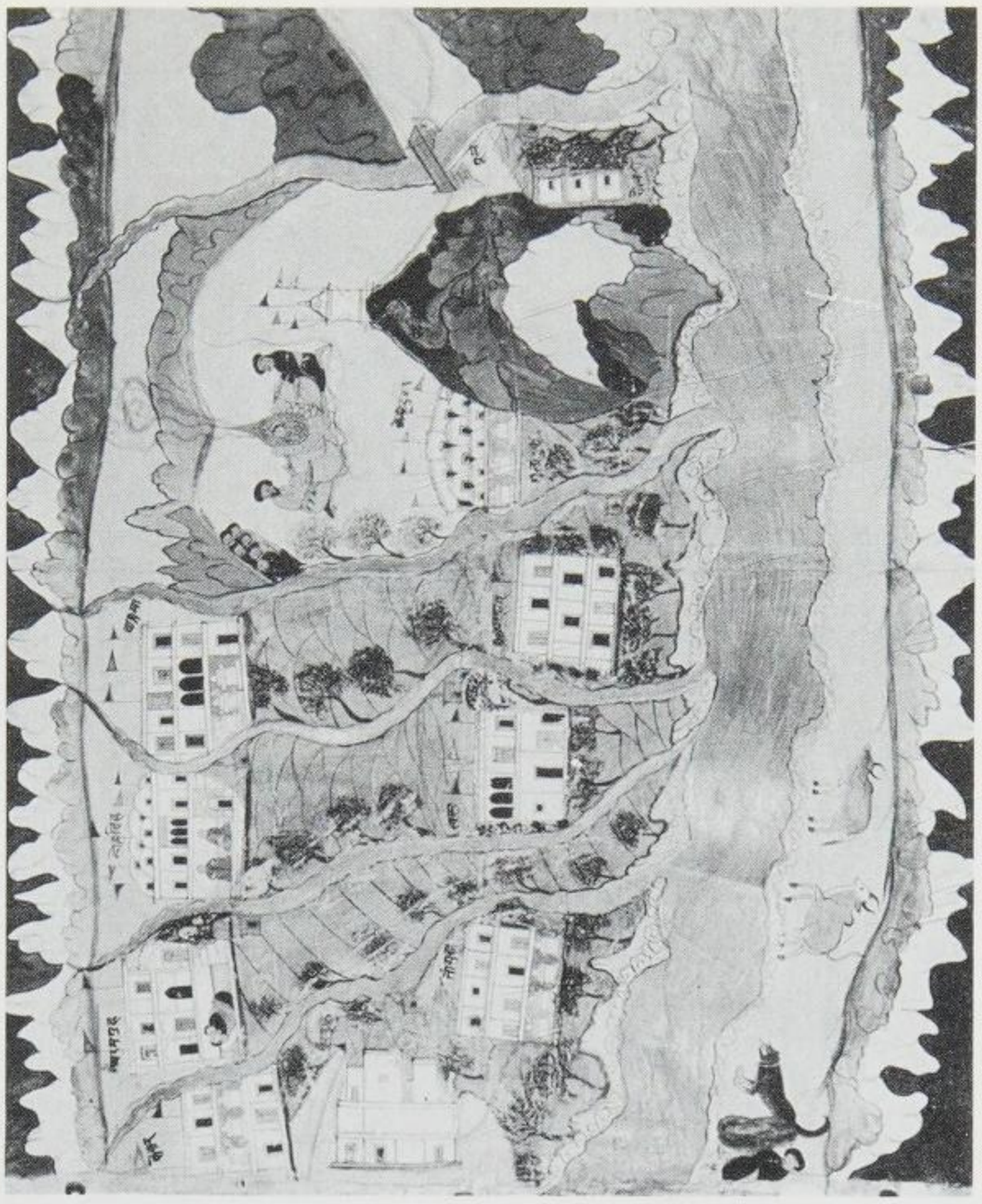
The lower three above are from the uncoloured volume [59], and provide some idea of how they must all have appeared when first drawn.

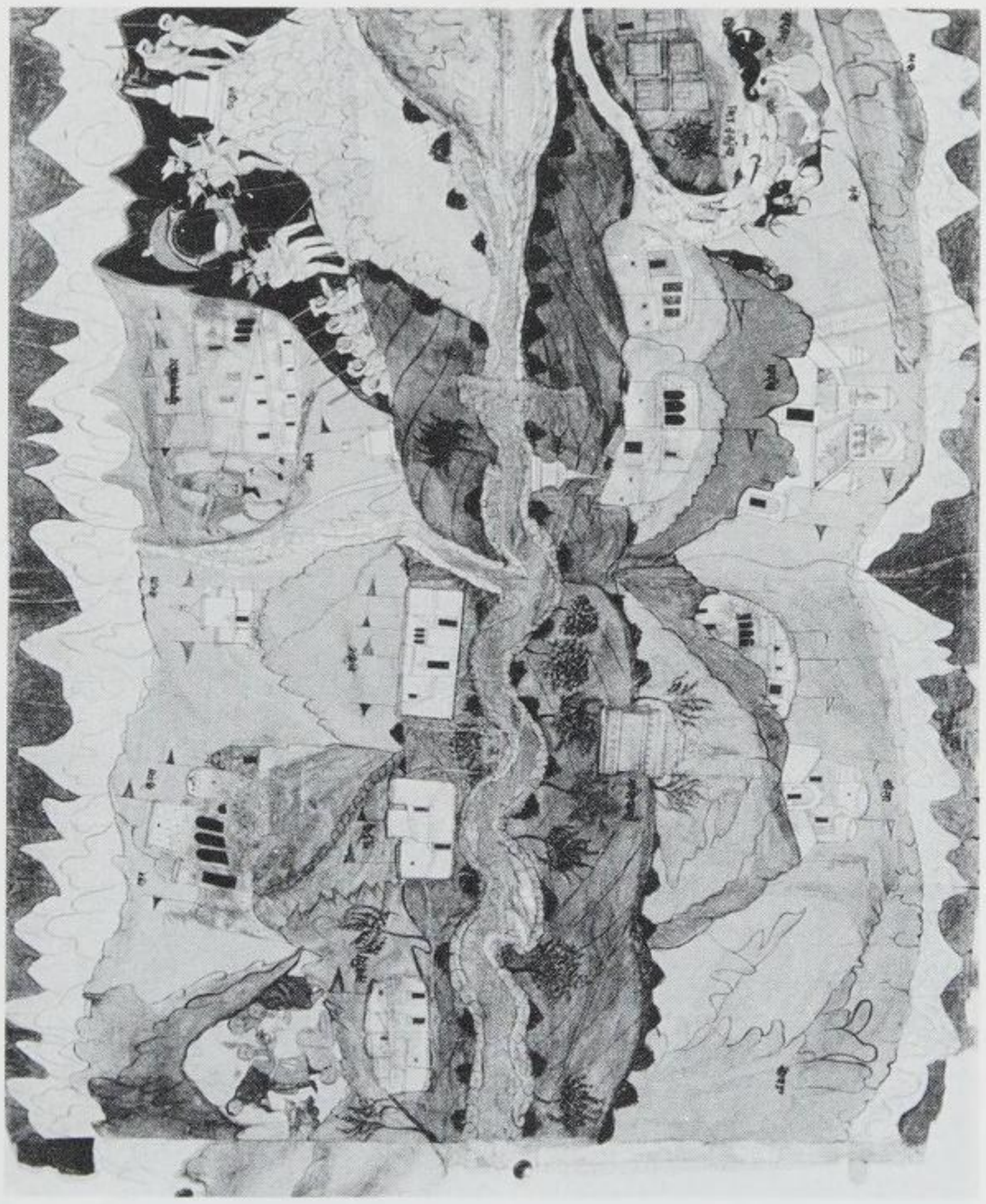


60
Title [March of Zorawar Singh ?]
Size Nine sheets each 66.5 x 52 cm
Language Hindi
Script Devnagri
Material Paper
Colours Blue, silver, green, brown, orange, light blue, yellow, white
Location Varanasi: Bharat Kala Bhavan
Cat. no. —
Bibliography Chandramani Singh, *Centres of Pahari Painting,* p.114

60
These nine sheets must once have formed a continuous scroll; they are now separate, and it is not possible to see how they would fit one to another, or in what order. The inscriptions are few, and mainly simple words, for example, 'road', 'bridge'; some villages are named. One inscription mentions a 'Wazir Jorawaro', whom Chandramani Singh takes to be the able general of Gulab Singh of Jammu. Zorawer Singh was appointed governor of Ladakh in 1840. A further aid to the date is the use of aniline dyes, which were first used in the hills in about 1825.

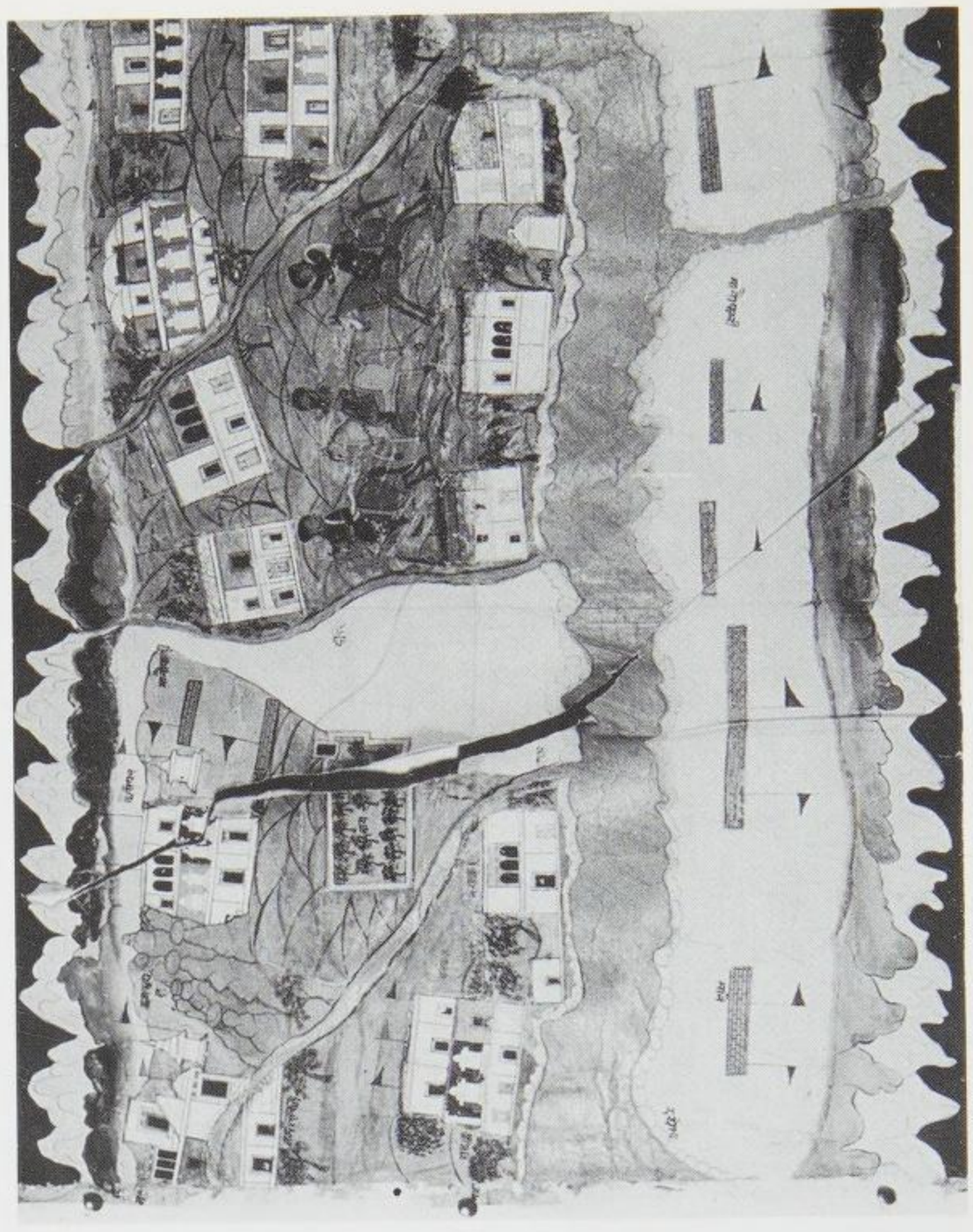
The pictures show a long valley between ranges of hills, all viewed from the valley floor. Apart from the many villages and permanent structures, many people are shown, either peering at the army from between the hills, as at the top left above, or going about their daily work. In the sheet above, the fort of Kargil is named between two bridges on the right. To the left and below it, two polo fields have been shown as empty rectangles, but we know their significance, as they are named. The bridge over the main stream is called a swing bridge, and its construction has been carefully differentiated from the bridge over the tributary.

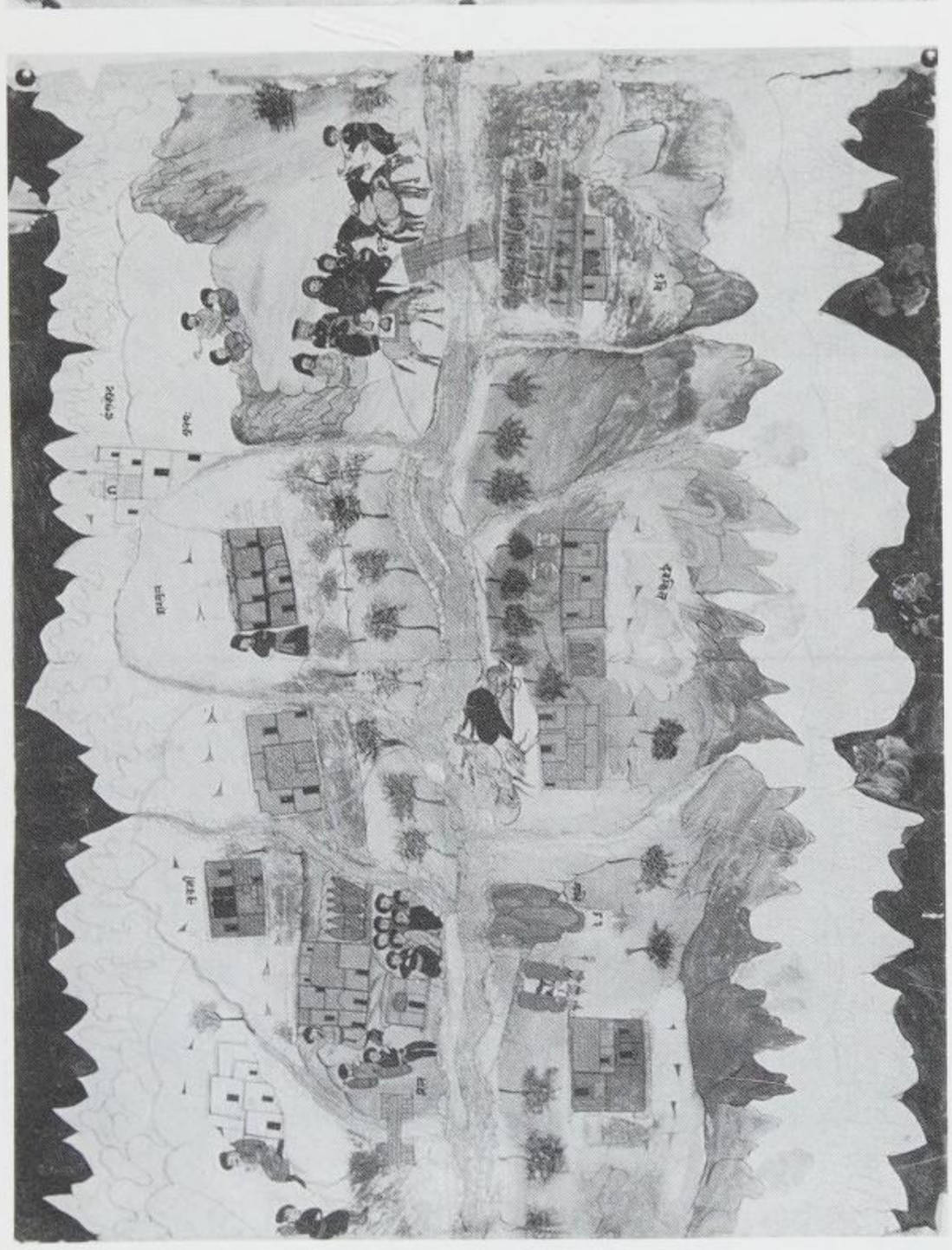


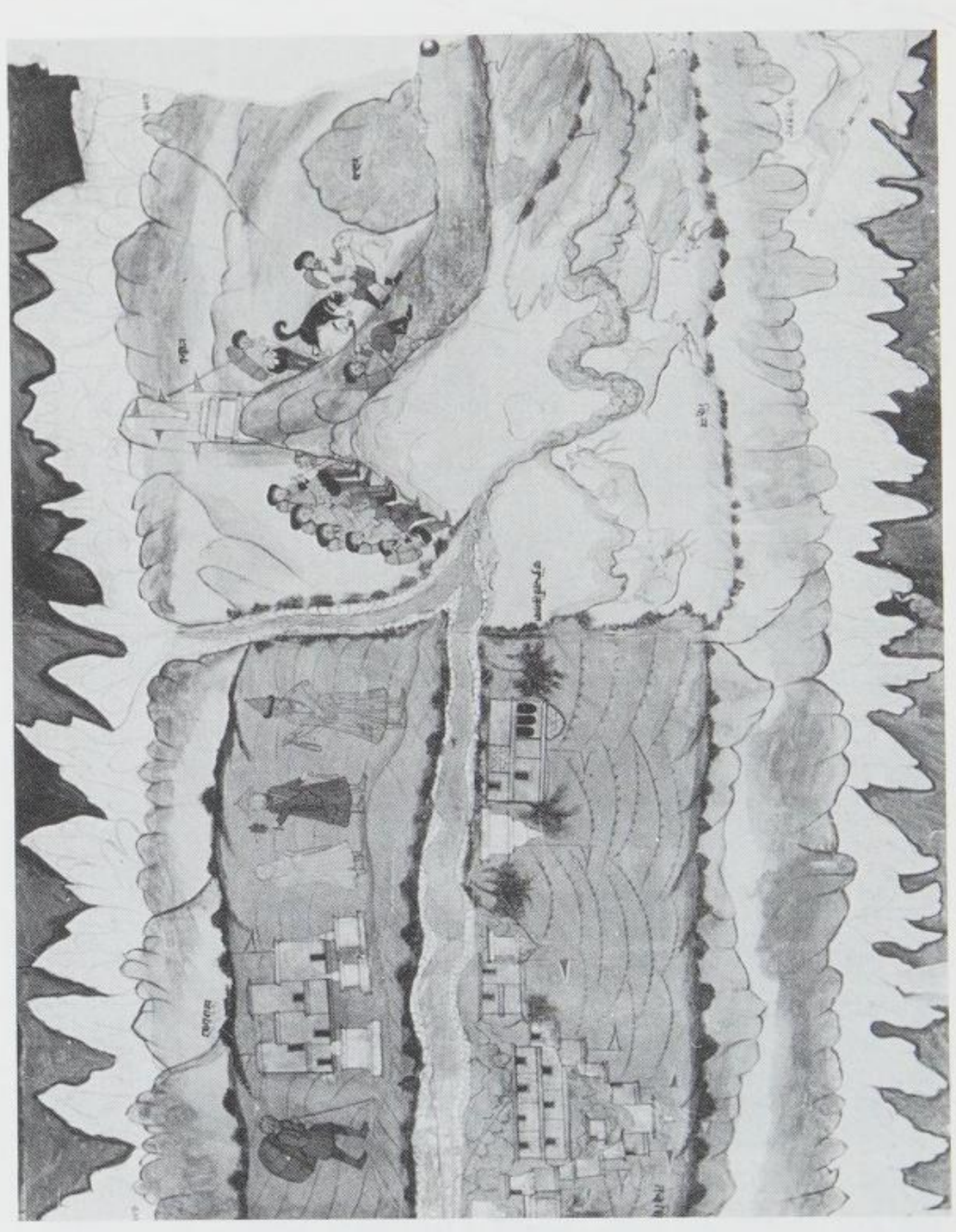


60.2
60.4

60.3
60.5







60.6
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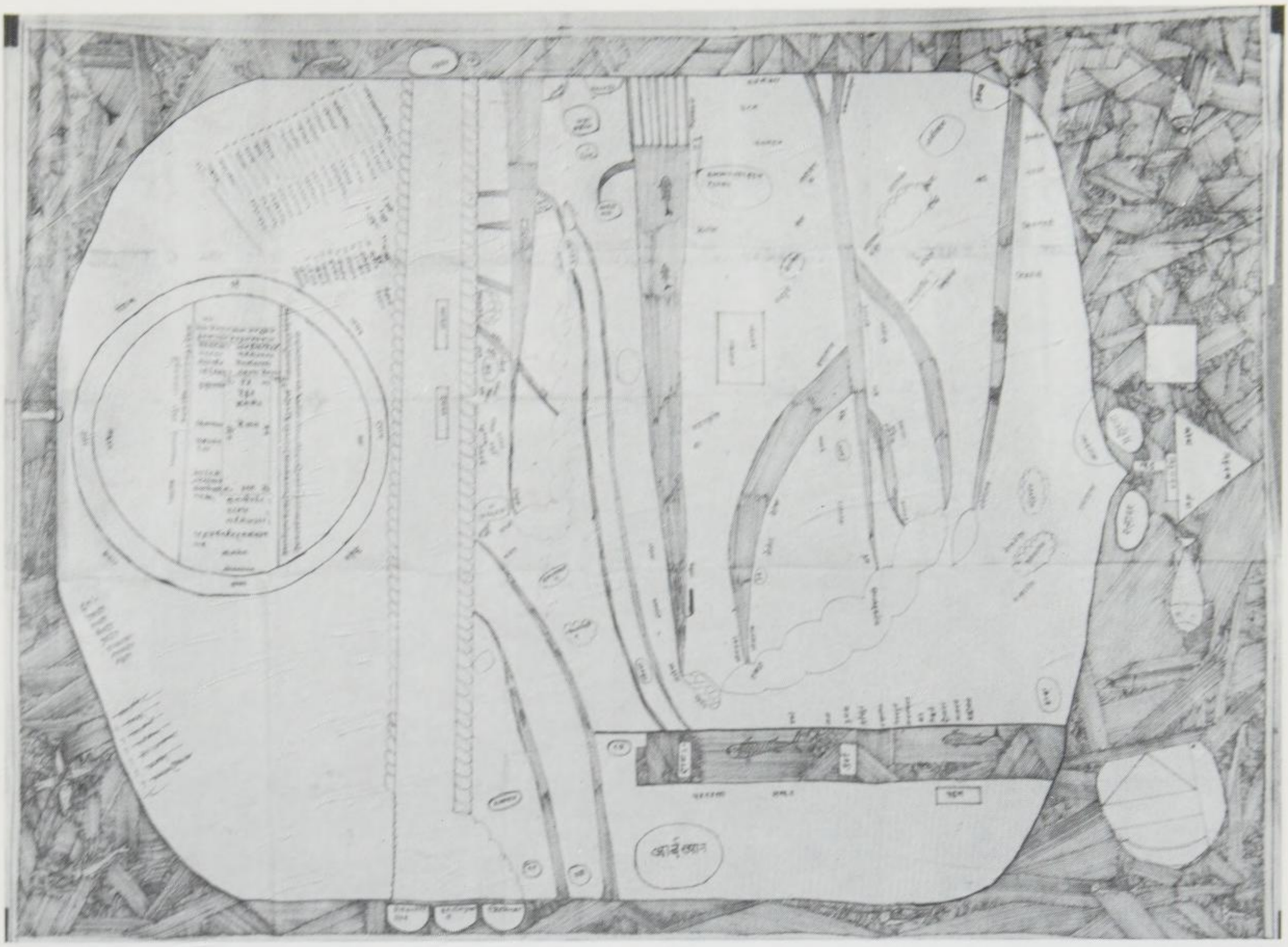
60.7
60.9



61

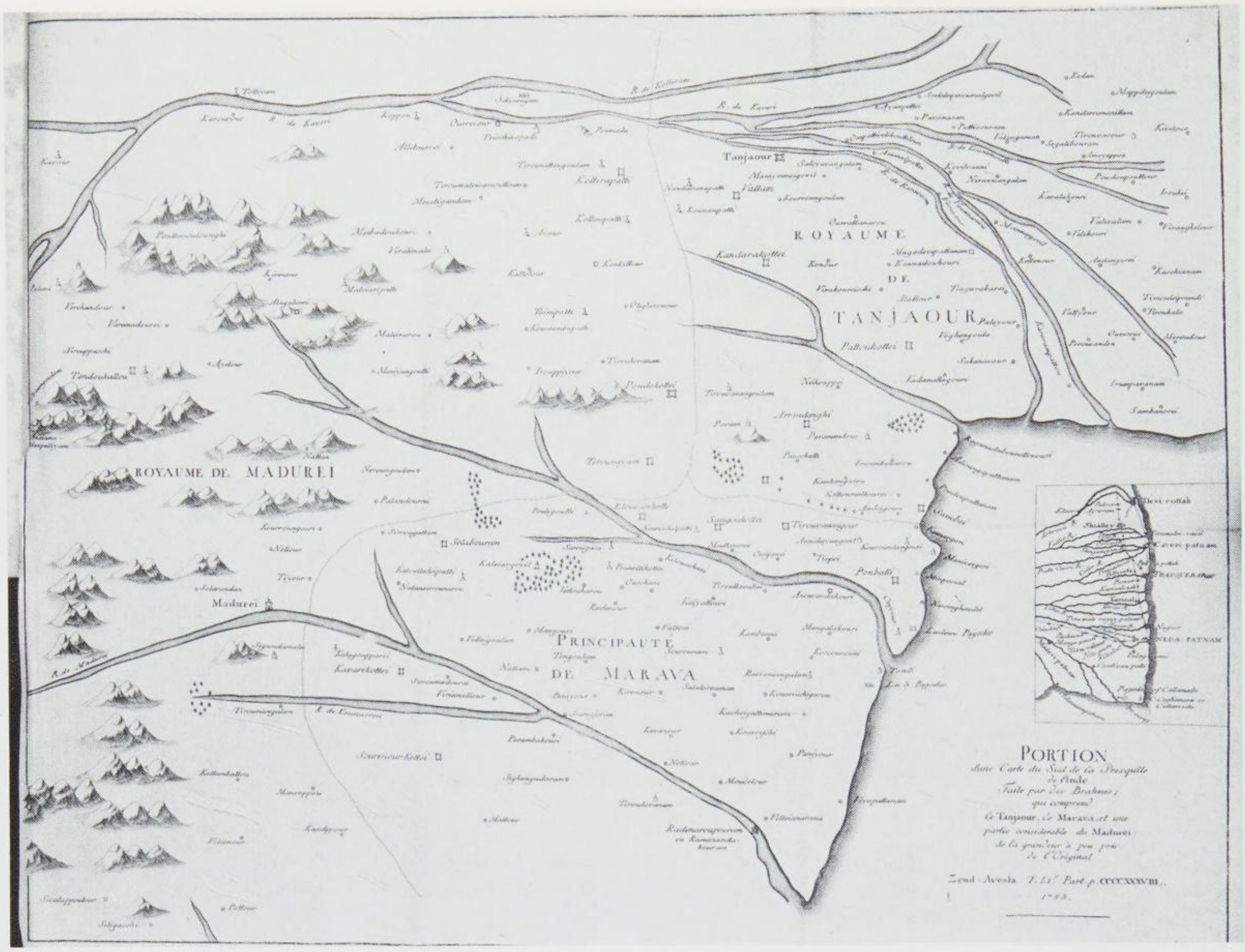
This strange map combines the Puranic world on the left (marked north) and the Indian subcontinent on the right, divided by the Himalayan ranges. The Puranic continents are listed at the lower left corner, and the Mughal subas in Modi at the upper left. No date is known.

Three islands at the west (bottom) are called 'Hatwearers islands', 'Pharasis' (France), and 'Ingrez vilayat' (England). The tongue of land is named 'Arabsthan', and in the sea between it and India are the names of Dwarka and Bombay. The rectangle in the centre is named 'Balaghat', with Hyderabad in the oval to the right. Calcutta is squeezed between the sea and the mouth of the first river from the left, and beyond it is China.

Most of the names are those either of the Maratha country, or of places known to them, such as Trichinopoli between the river and the sea on the right. The triangular island on the right is Lanka. Along the western coast are the following names: Kutch (at the left end of the sea), Vasai, ?Nahi, Kolaba, Suvarnadrug, Ratnagiri, Vijaydurg, Sawantwadi, Goa, Gokarn, Honagar, Lalchari and Calicoti. Satara is shown in the centre, between the second and third rivers from the right, and Pune is circled on the right of the fifth river. There is little idea of the distance across the subcontinent, and how much land there was beyond Maharashtra itself. The sea has been heavily patterned, but if this had any symbolic meaning, it has now been lost.

61

Title	Prithvichi naksha
Size	100 x 73.5 cm
Language	Marathi
Script	Devnagri and Modi
Material	Paper
Location	London: India Office Library
Cat. no.	Mss. Mar. G.28.1
Bibliography	Blumhart and Kanhere, *Catalogue of the Marathi Manuscripts in the India Office Library*, p.89



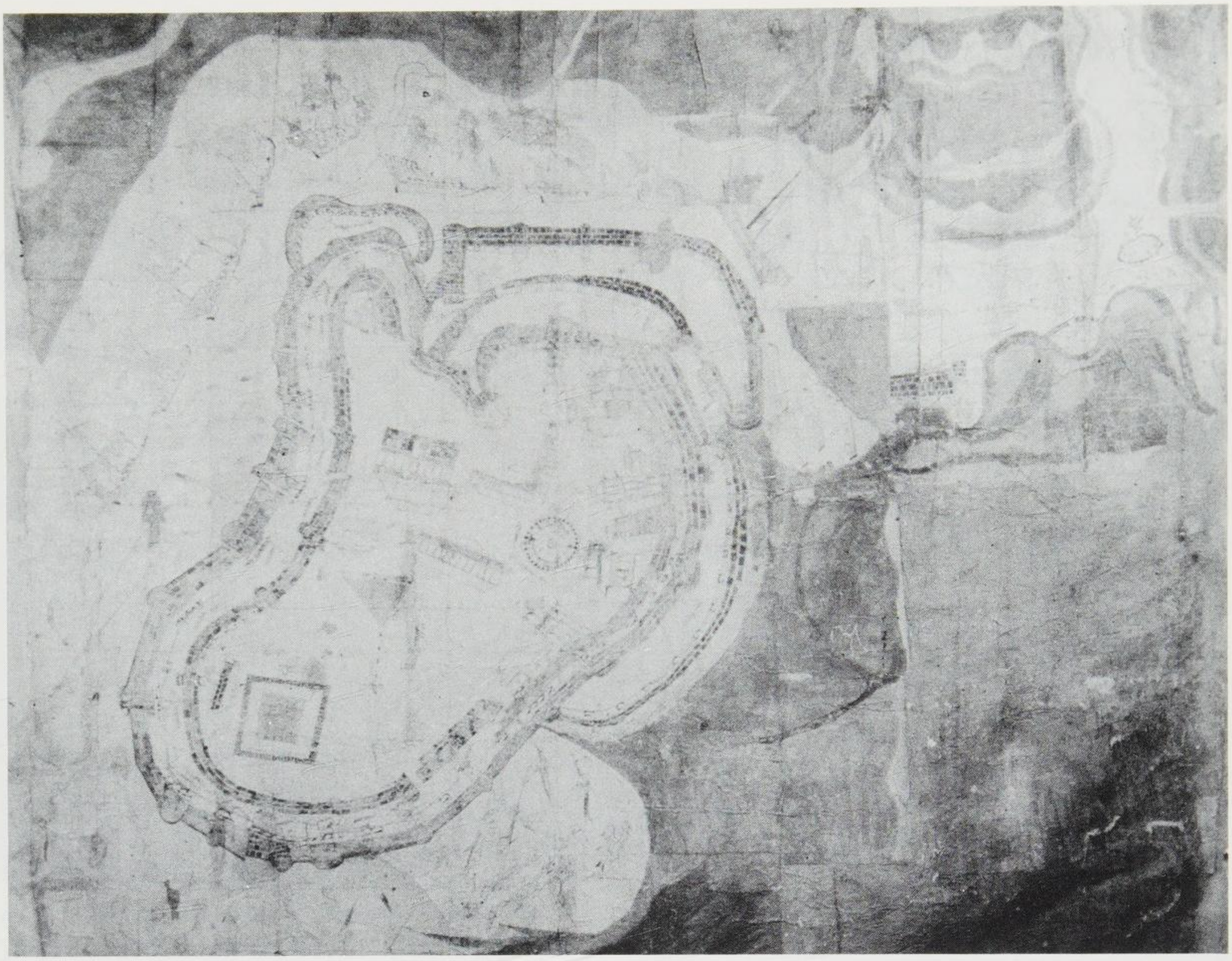
62

Title	Portion d'une Carte du Sud de la Presqu'ile de l'Inde Faites par des Brahmes
Size	Original unknown; as published 52 x 40.5 cm
Language	Original unknown
Script	Unknown
Material	Unknown
Location	Bernoulli, *Beschreibung von Hindustan*, Vol. II Pt. 1, p. 438
Cat. no.	—
Bibliography	—

62

The original for this map could not be traced in Paris, so it is not possible to say how the 'map drawn by some Bramins' differed from the French version published in 1785. Anquetil du Perron was in India in 1761, and actively looked for indigenous maps. He did not record how he acquired this one, nor under what circumstances it was made. It is not only the French lettering that makes it look like a European map; the symbols for the various sizes of town are rarely found on Indian maps in this form. Earlier French maps by Guillaume de l'Isle and d'Anville showed as much detail as this one, and more correct geographical information, as can be seen from the small inset on the right.

The title states that this is only a portion of the original map of south India. Perhaps the whole map was somewhat similar to maps in the library in Pune, which could not be reproduced here.



63

B. K. Apte has given a full translation of this map. The compass rose in the centre marks east at the top, but the writing is to be read from all directions.

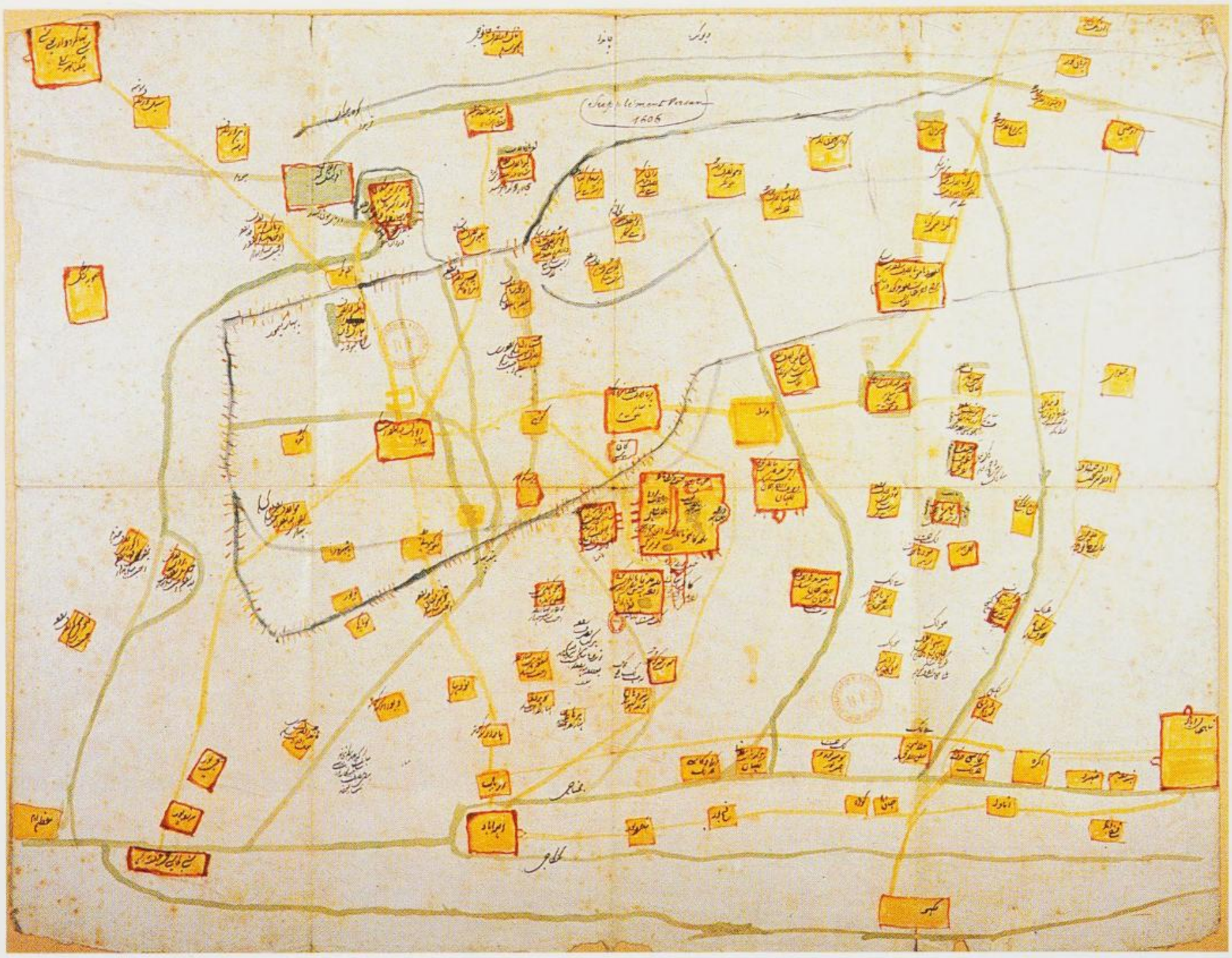
Seventeen bastions are named on three sides of the fort around the outer wall, towards the sea. On the land side, at the south-west, was the main gate, with the roadway taking several sharp bends to provide maximum protection. Along the landward wall are towers several storeys high.

Within the fort the main buildings only have been shown. The angled building above the compass rose is the Head Office, and beyond it is the store. At the western end of the fort is the water tank. The standard, probably that of the Angres, the Maratha admirals, flies from the flag-staff. Alongside the pole the name of the fort is written 'Janjire Vijaydurg'. The sea is full, on the western side with many different kinds of fish, and on the northern side with shipping. In the creeks on the south-eastern side are more ships, smaller in size.

Vijaydurg, about 170 miles south of Bombay, has been called one of the best natural harbours on the west coast of India. Shivaji strengthened the fortifications during the 17th century, and the Angres held it until they were defeated by the British in 1756. Soon after it was handed back to the Marathas. Possibly the map was prepared during the struggle for possession in the middle of the 18th century.

63

Title	Vijaydurg
Size	190.5 x 172.5 cm
Language	Marathi
Script	Devnagri
Material	Paper on cloth
Location	Bombay: Prince of Wales Museum
Cat. no.	55.103
Bibliography	Apte, *Maratha Navy,* Fig.7; Deshpande in *The Indian Archives*, 1953, pp.88–89



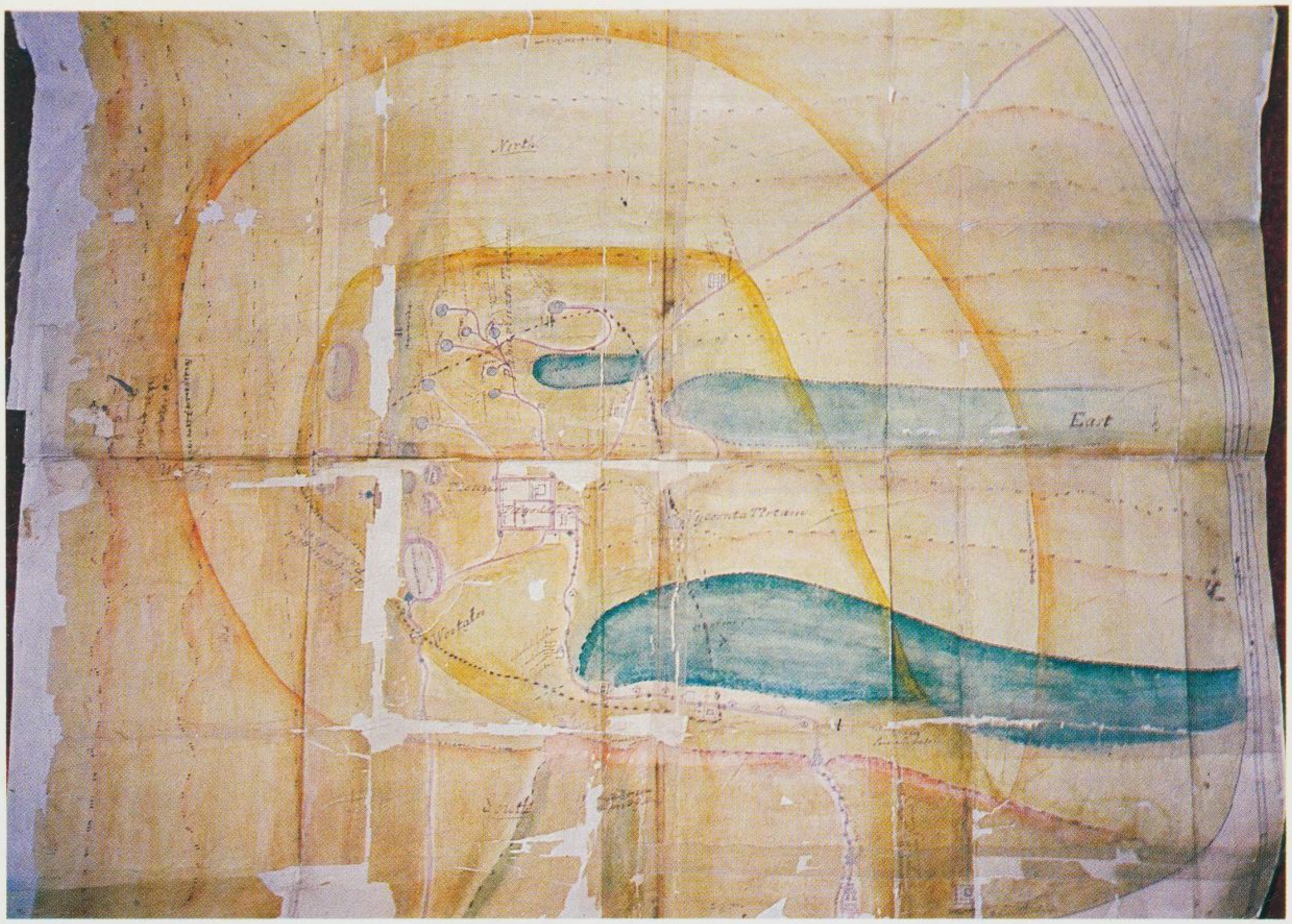
64
Title Central India
Size 66 x 51.5 cm
Language Persian
Script Persian
Material Paper
Location Paris: Bibliothèque Nationale, Manuscrits Orientaux
Cat. no. Supplement Persan 1606
Bibliography —

64

The name of Janoji Bhonsle is given in this map, as ruler in Nagpur, diagonally left above the French title. He ruled from 1755 to about 1774. Another name is that of Maharaja Ajit Singh (in several places). This was a common name, and there were several rajas so named; however, Ajit Singh of Bundi ruled about 1770–74. These two names make it likely that the map relates to the eighth decade of the 18th century.

The colouring is unusual, with the use of yellow for both roads and forts. The green lines are rivers. A long grey-blue line forming a rectangle in the centre has been slashed with red, but its significance is unknown. Alongside the town names amounts in lakhs have been written, perhaps the revenue expected from each.

The map covers a wide area of central India. At the bottom right corner is Shahjahanabad (Delhi), with towns beside the Jumna till it joins the Ganges at Allahabad (bottom centre). At the lower edge of the map Lucknow is shown beside the unnamed river which joins the Ganges at Kashi (Benares, bottom left). Along the upper edge are Jagannath at the left, Nagpur in the centre, and Burhanpur and Aurangabad at the right. The large fort in the centre is Kalinjar. The writing on the map is mostly to be read with south at the top. It may have been a map of this type that Rennell used for Bundelkund, when making his large map of Hindustan in 1782.



65

The date 1873 has been given for this map in the title, and at the bottom right corner is the name of the artist, Alim Sher Ahmed, draftsman. English directions have been added to the Telugu.

The map shows the holy temple of Tirupati in Andhra Pradesh, for many devotees the most holy site in south India. The boundary line is called 'Vidhuswami', i.e. the limit of the Sanctuary. The dotted lines are probably to show the paths used by the pilgrims as they ascend the hill.

Hunter in the *Imperial Gazetteer* (1887 edn) related how an English magistrate was the only Christian till then permitted to enter beyond the outer wall. This was in 1870, during an enquiry into a murder case. This map may well be linked to this case, though it is surprising that a Muslim was permitted to draw it.

Near 'South' at the bottom centre, a scale had been given, but it is now illegible.

65

Title	Tirumala Hill
Size	87 x 68 cm
Language	Telugu, with English translation added
Script	Telugu and English
Material	Paper
Location	Hyderabad: Andhra Pradesh State Archives
Cat. no.	B.P. Press No. 28. Feb 1874
Bibliography	—

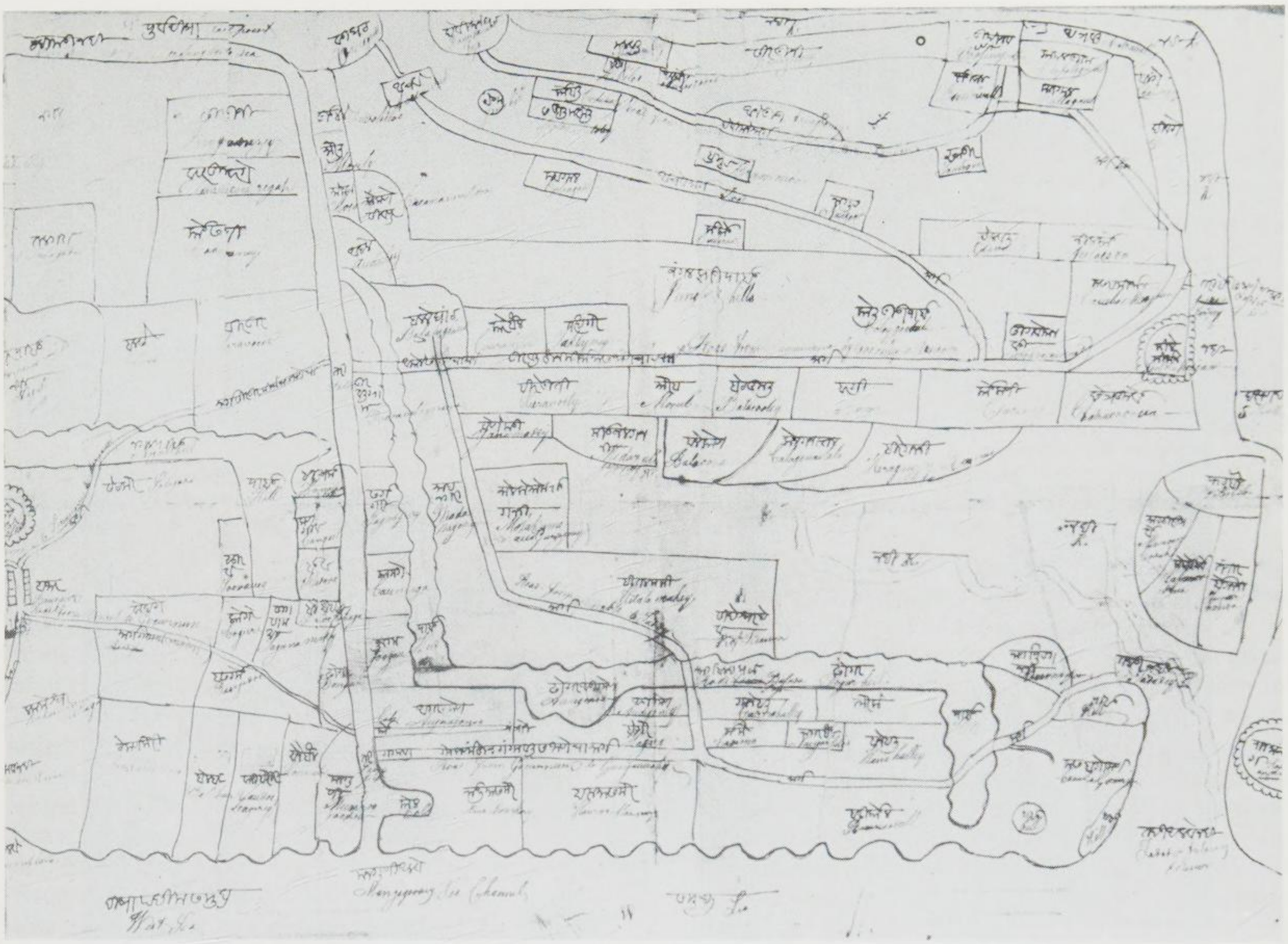
66
Title [North Kanara]
Size 166 x 60 cm
Language Marathi and English
Script Modi
Material Paper on cloth
Location New Delhi: National Archives of India
Cat. no. MRIO, 124 (2)
Bibliography Phillimore in *Imago Mundi* , Vol. IX, 1952, p.113–14

66

All the names on this map have been written so that they are to be read with east at the top of the map, a Maratha cartographic tradition. It is composed of several sheets, each about 41 x 31 cm in size, on which Phillimore found what was probably a Portuguese watermark. The area covered is from the southern boundary of Goa on the left to the Aghnashini river on the right, about 35 miles along the coast, and about 12 miles inland. English names have been added in two different inks.

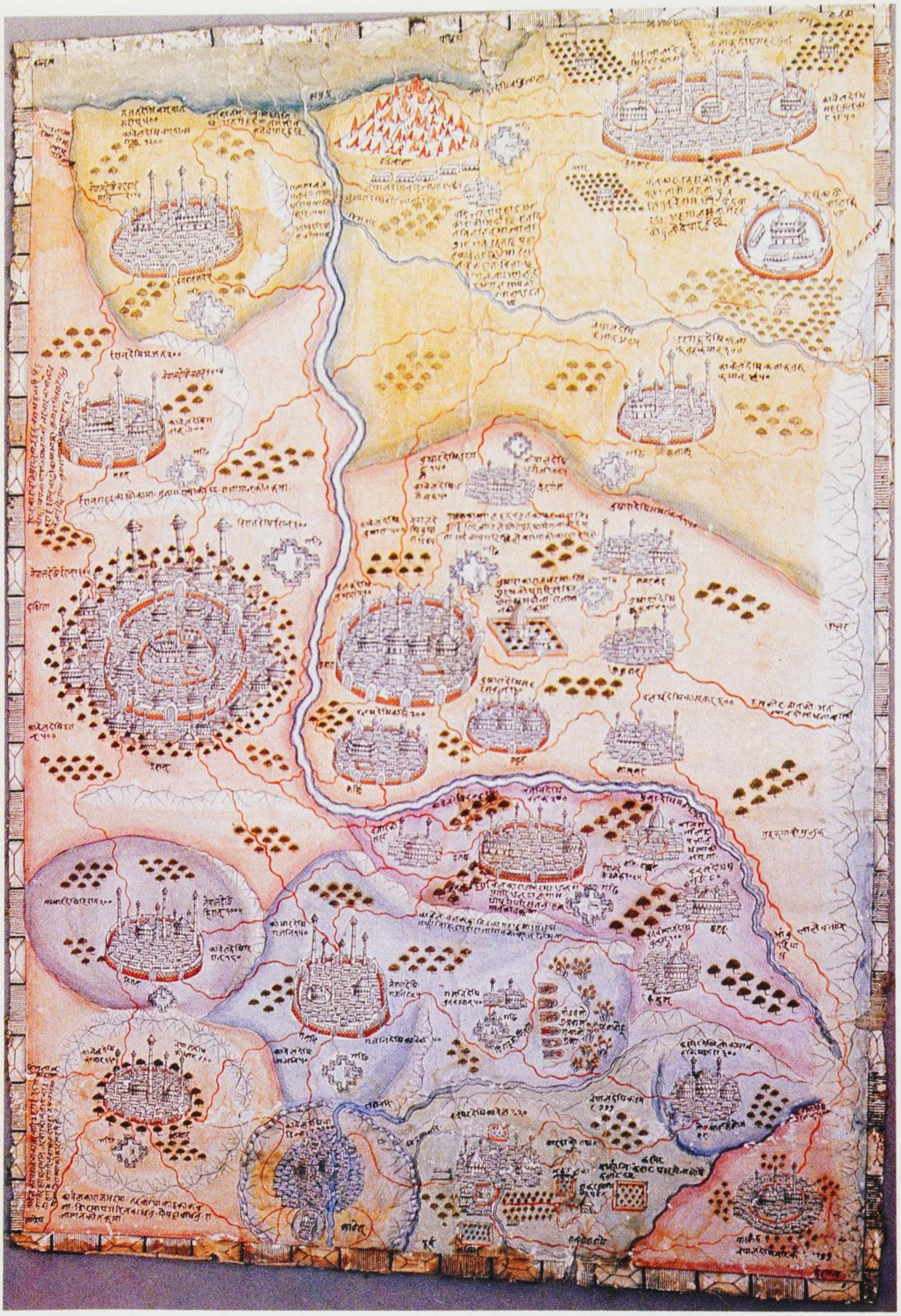
Very detailed topographical information has been included. Apart from the rivers, roads, fortified towns and villages, hills, jungles and paddy fields have also been noted. Ferries have been indicated, and names to the passes over the hills on the east.

Phillimore suggested that the map might have been prepared for the first British Collector of Kanara in 1799, after the defeat of Tipu Sultan at Seringapatam. However, the style is somewhat similar to other maps that have been seen at a library in Pune, and it is more likely that the Marathas were making and using such maps long before that date. The main difference between this map and the others

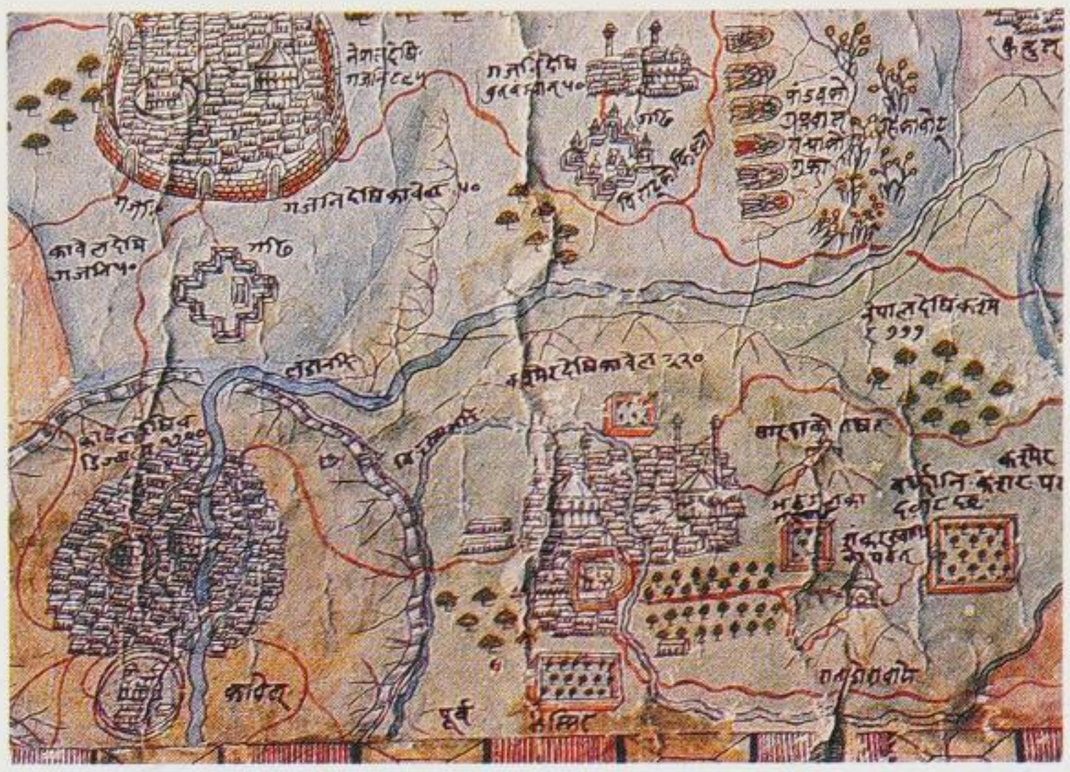


is the lack of decoration here. Only two fish are shown, and those two in the sea, none in the rivers. No trees or other flora have been depicted, either as decoration or as symbols. The only conventional signs are the stones around the five forts, indicating their defences; all other information is textual.

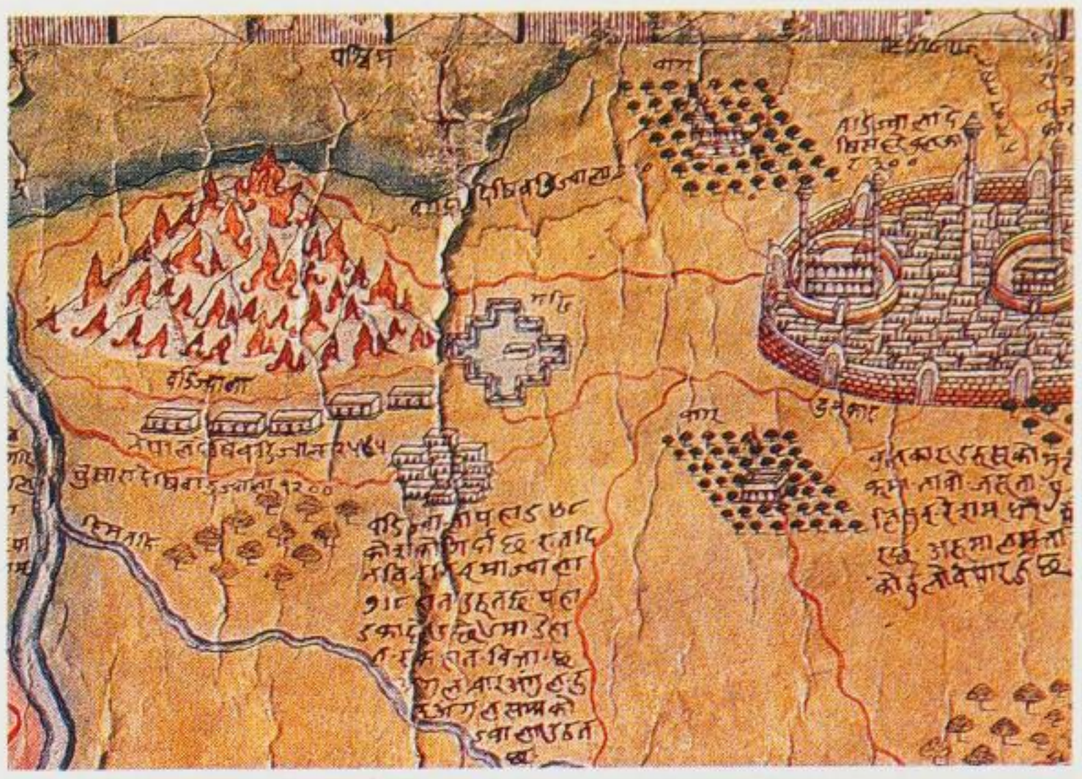
When the British took control of so much of south India, surveyors were sent out to map the newly acquired territory. Mysore and South Kanara were mapped between 1801 and 1806, but the area covered here was not surveyed until some eight years later. It is possible that the British managed to acquire a Maratha map, and added the English translations to it, or that they had a copy made, putting in only the information they needed, without the decoration. The English names are in a poor hand and often squeezed into too little space, making them difficult to read. They are simple translations of the Marathi sounds, not written in the standard orthography used later.



67



67a. The town of Kabul, surrounded by hills, on the left, with Kashmir on the right. Above it are the Pandavas in caves.



67b. The burning mountain near the sea. On the right is the town of Bulgar, in central Russia. The ranks of trees represent forests or orchards.

67

Nepali maps that are not Chinese in origin are very few. This one has obviously been made by a Hindu, from internal evidence, but nothing more is known about it. The river running from the unnamed sea at the top is the Amudarya. The towns down the left side, from the top, are Baghdad, Meshed, Iran, Herat and Kandahar. On the left side, from the upper left corner, are Bulgar, Kanal, Urgenj, Samarkand, Bokhara and Karchi in the bend of the river, and Sabuj and Kashgar on their right. Across the river are Balkh, Kunduz and Kundun. At the bottom right corner is Yarkand, and moving towards the centre, Kashmir and Kabul, with Gazni above. The area is thus very wide. Neither the names nor the positioning can be said to have been taken directly from any European map.

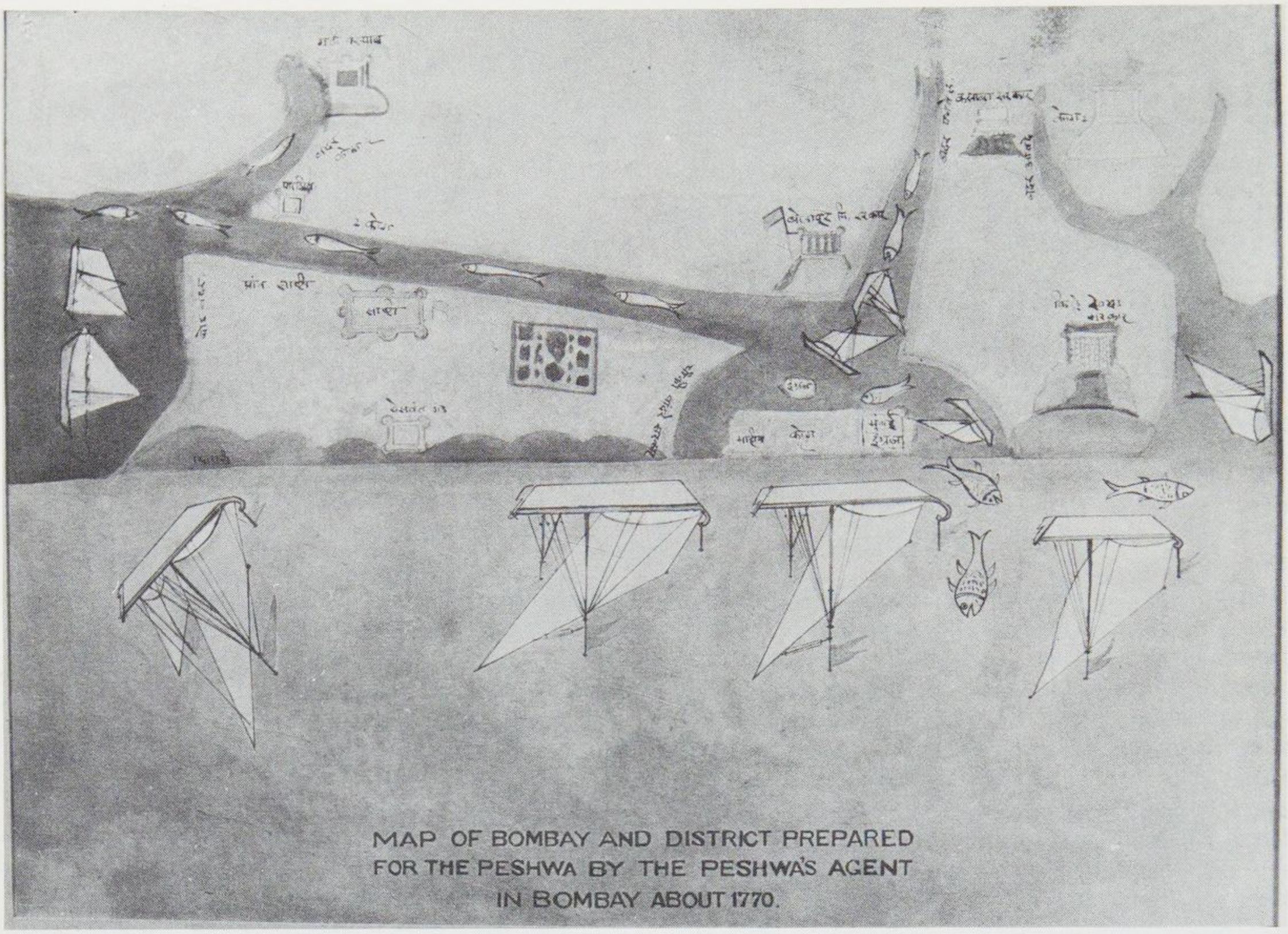
At the top centre is a burning mountain, with a legend beside it describing the height of the flames which burn day and night — perhaps a reference to the natural oil wells near the Caspian Sea.

Beside several of the larger towns is a small symbol with the legend 'fort', either to indicate that the town is fortified, or that army forces are stationed nearby. Figures are given beside all the towns, indicating their distance from either Kabul or Nepal (the Kathmandu valley was known as Nepal after its conquest by the Gurkhas in 1764). Presumably the figures refer to cos, but it is not specified.

In Kashmir the Mughal gardens have been given prominence, as well as Shankaracharya hill with its ancient temple at the summit. Above are the caves of the Pandavas, with asafoetida plants growing around. Most of the longer legends are derogatory remarks about the habits and nature of the local inhabitants. Apart from Nepal, two other towns are named beyond the area covered by the map: the road to Rum (Turkey) is at the top left corner, and the road to Hinglaj is at the bottom left corner. Hinglaj is a holy site on the Makran coast.

It is possible that the map was drawn in the early years of the 19th century, when attempts were being made from Nepal to unite the neighbouring countries and throw out the foreign European invaders, before they became too powerful. The map may have accompanied a travel journal kept by one of the ambassadors sent to negotiate with the courts of far off countries, figured in the map. Attempts to learn more about its provenance in Kathmandu have been unsuccessful.

67	
Title	[Central Asia]
Size	54 x 76 cm
Language	Nepali
Script	Devnagri
Material	Paper on cloth
Location	New Delhi: private collection
Cat. no.	—
Bibliography	—



68
Title [Bombay and District]
Size 35 x 24 cm
Language Marathi
Script Devnagri
Material Paper
Colours Black, red, blue, brown, light blue, beige
Location Bombay: Bhau Dadi Lad Museum
Cat. no. F/262
Bibliography —

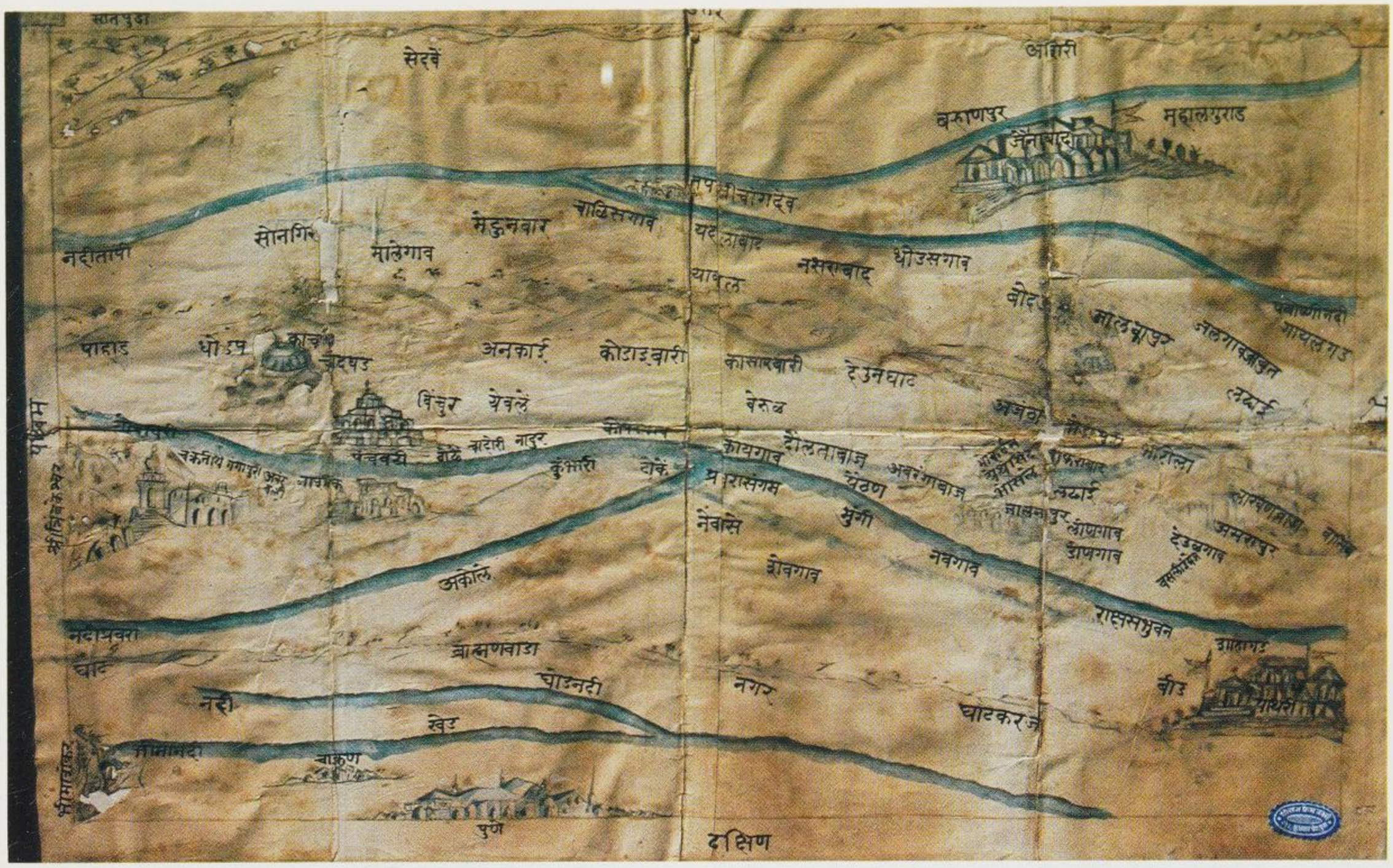
68
The original, from which this map was copied, is no longer available. There is no record when or where the copy was made, nor of the accuracy of the date 1770 given in the English title. This would, however, fit with other Maratha maps of about this time.

The English fort at Bombay is shown at the right end of the small rectangular island in the centre of the map. Right of it are Kosh and Mahim. The small island above it is called Ingral.

The fortress on the right is Deogad. Above, between the creeks of Andhe and Panvel, is Kesara. On its right a legend reads '2 cos' — perhaps between the two forts. Opposite Bombay in the mainland is Belapur, while across from Mahim is Chowki Wandare. The two forts on either shore of the island are Sashti and Yashwantgad, the latter possibly representing Bassein, and the former Salcette.

The fort at the upper left corner is Gad Kalyan. It is separated from a small fort labelled 'Parshik', which may be a name or signify a hilly area. Another distance, again 2 cos, is given beside it.

Perhaps the map was prepared at a time when the Marathas were hoping to gain control of the growing town of Bombay. They were not finally conquered by the British until 1817.



69

North is marked at the top of this map, and all the writing is to be read from this angle. It is a late Maratha map, depicting two battlefields against the British under Sir Arthur Wellesley during the Second Anglo-Maratha War, in the first five years of the 19th century.

The major rivers are prominently shown, with the Tapti near the top, the Godavari in the centre, and the Krishna river near the bottom. Towns have been shown in elevation, with some attempt to draw them as they might appear from a distance. At bottom centre is Pune. Bhimashankar and the shrine of Shri Trimbakeshwar are on the left, and Berhanpur at the upper right corner.

In several places the word for battle has been written, indicating the sites where the engagement had taken place. Possibly the map was drawn to illustrate an account of the war.

69

Title	[Western India]
Size	60 x 38 cm
Language	Marathi
Script	Devnagri
Material	Paper
Location	Pune: Deccan College Museum
Cat. no.	From Biwalkar collection
Bibliography	—

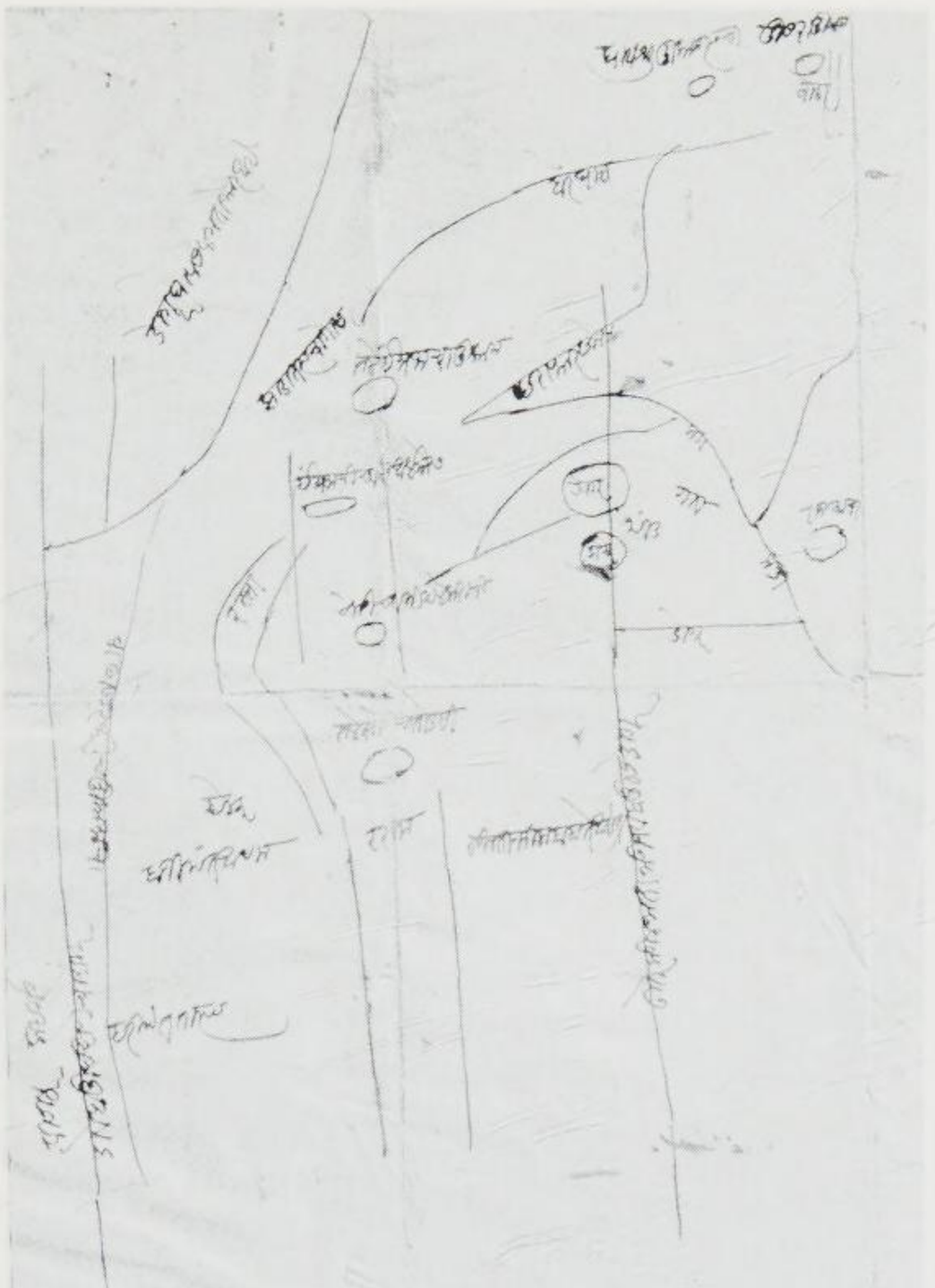
70
Title [Disposition of the army]
Size ?
Language Persian
Script Persian
Material Paper
Location Jaipur: H.H. Jaipur personal collection
Cat. no. 541
Bibliography Bahura and Chandramani Singh, *Documents from Kapad-dwara*

70

The vertical inscription at the upper left side of this plan records that at Lower Kohat Sultan Akbar had with him Maharaj Guru and Kunwar Kishan Singh. The maharaja must refer to Jaswant Singh of Jodhpur. Prince Kishan Singh of Amber was with him in Aurangzeb's army in Afghanistan from 1674 to 1677. These names date the map to this period.

It contains much information useful to a military campaign. The line across the lower half is the Indus river, and at the centre above it is a note that the small town of Peshawar is 25 cos away. Below the river is Attock, 12 cos from Hassan Abdal (at the bottom centre). At the right corner are the Yusuf Zais, the Pathans. Above the Indus on the right is the Zamindari of Khush-hal Khatak, 'who is our enemy, and a very evil person', ?drowned (text unclear) in the river Indus. Beyond the Indus, from left to right, are the forces of Nusrat Khan, Fidai Khan and Mughal Khan. It is not certain what the line behind them indicates, but along it several valleys are named: (from the left) Yelum Guzar Valley, Aakhur Valley, Khaibar Pass, and Safid Khak Valley. At top centre is the capital, Kabul, with below, Bangash, the enemy's position at Tirah, and Jalalabad.

Though the map appears to be a quick sketch, it shows how much knowledge there was of the area, and how it could be put on a map so that it was understood.



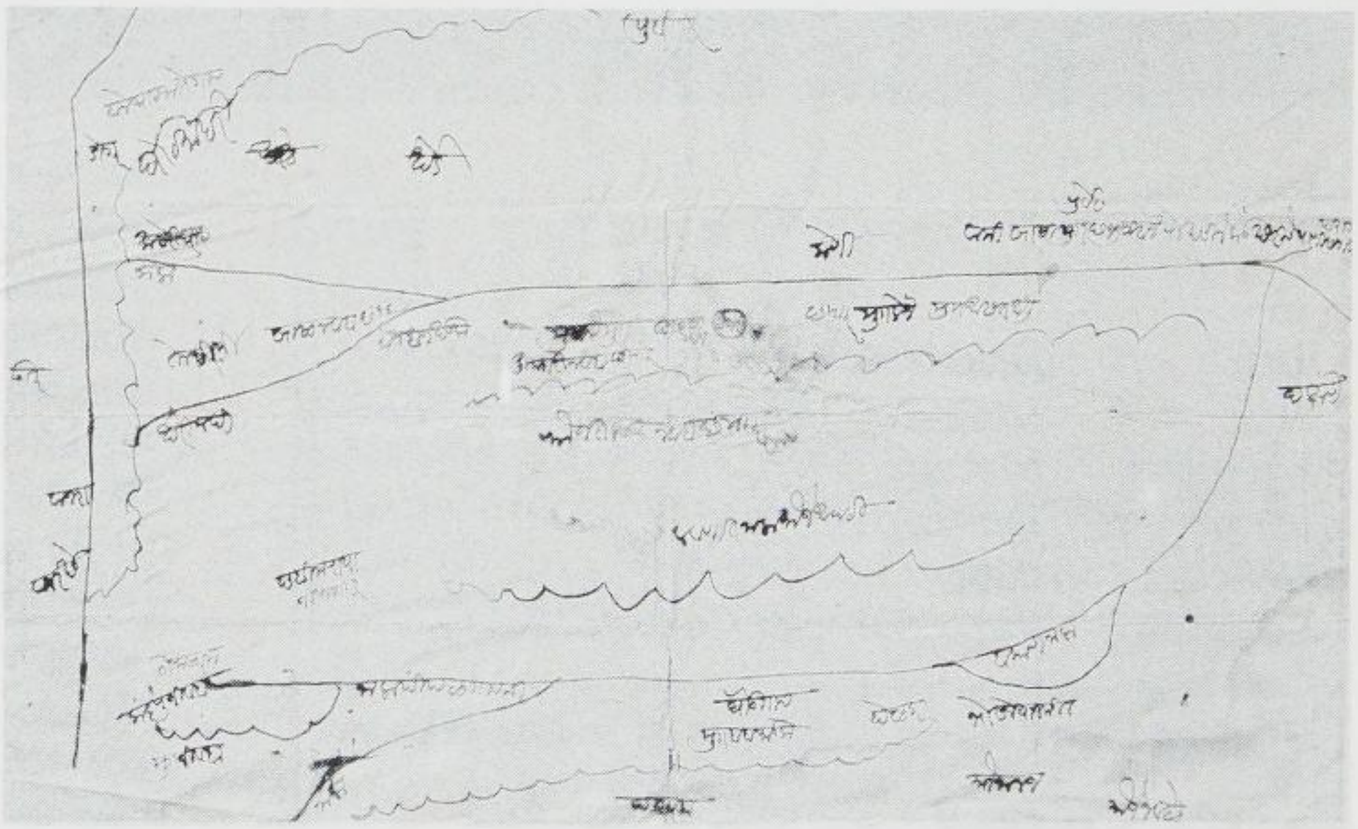
71

71 and 72

These two battle plans show less foreign influence than that drawn to show the battles against Wellesley [69]. Talegaon was the farthest point reached by the British army in 1779, when they came to restore Raghunath Rao as Peshwa. The battle fought here resulted in the Treaty of Wadgaon.

The battle at Kharda was fought in 1795 between the Marathas and the Nizam of Hyderabad. The latter's troops were completely routed. The map is on quite a small scale. East is at the top. Rivers are shown by straight lines, but the wavy lines depict the deployment of the various forces, with the Nizam's in the centre, and the Marathas at the bottom.

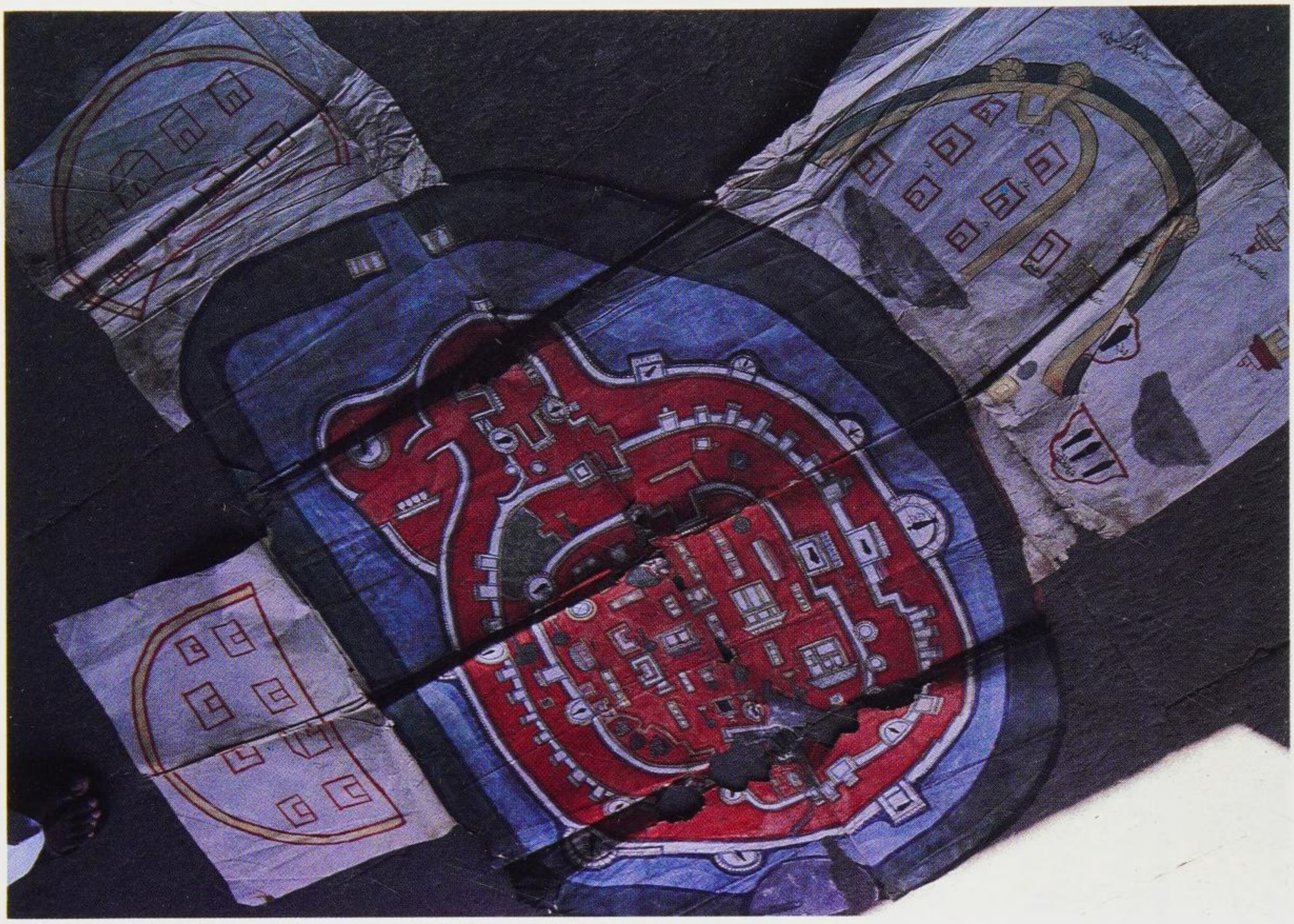
On the left are the towns of Varkhed and Vanjra; Kharda itself is behind the Nizam's lines.



72

71
Title [Battle of Talegaon]
Size 27.5 x 44.5 cm
Language Marathi
Script Devnagri
Material Paper
Location Pune: Deccan College Museum
Cat. no. —
Bibliography —

72
Title [Battle of Kharda]
Size 44.5 x 27.5 cm
Language Marathi
Script Devnagri
Material Paper
Location Pune: Deccan College Museum
Cat. no. —
Bibliography Kulkarni and Kantak, *Battle of Kharda*, p. ix-x

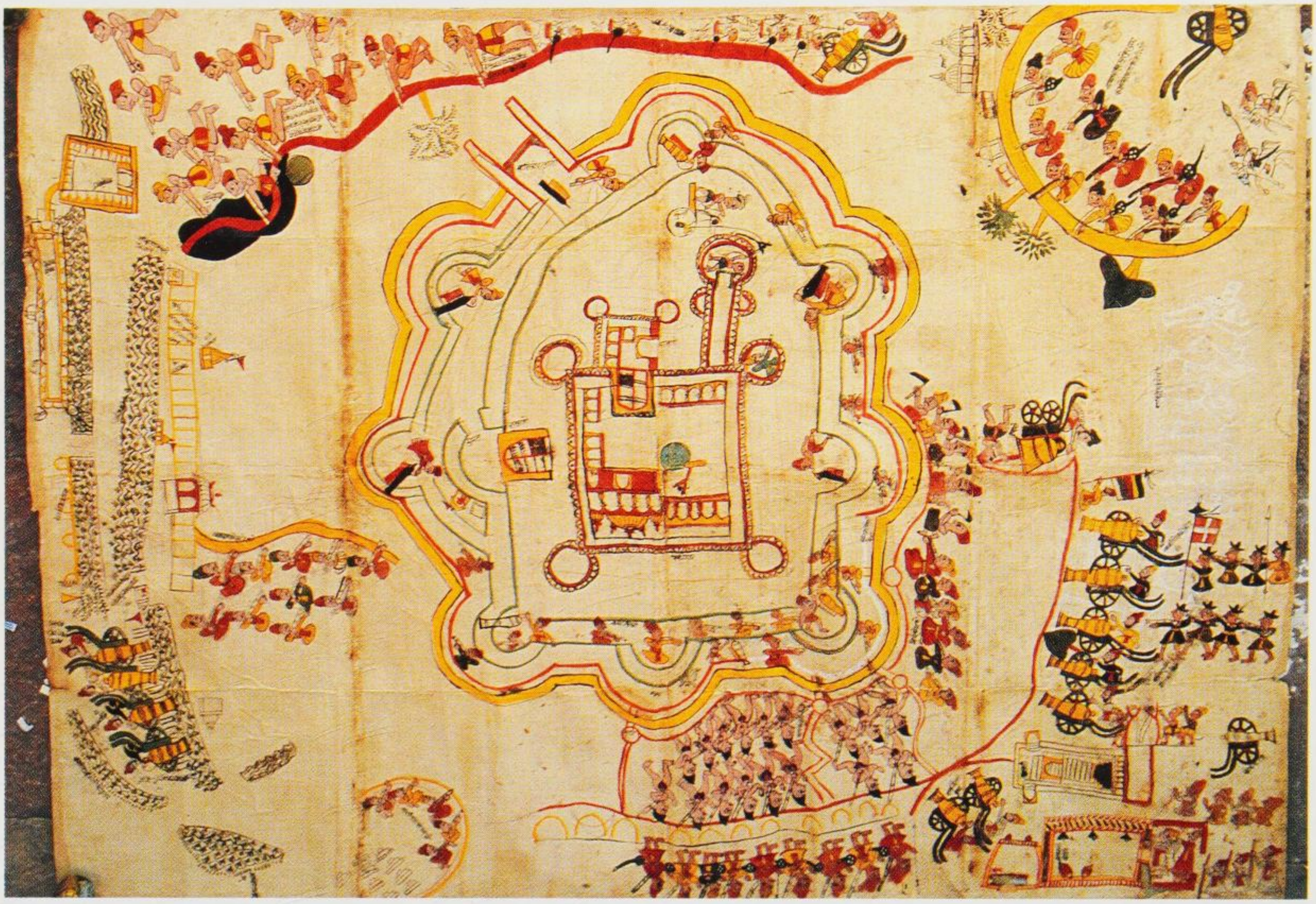


73
Title [Dharwar Fort]
Size Irregular, 110 x 80 cm
Language Marathi
Script Devnagri
Material Paper
Location Pune: Deccan College Museum
Cat. no. —
Bibliography Chitnis in *Studies in Indian History and Culture*, p.267

73
According to K. N. Chitnis, this map of Dharwar fort was drawn in 1791. The name of the artist is on the back: Visaji Narayana Vadadekar. He was the agent for the patwardhan in the Peshwa's court at Poona, and perhaps had the map prepared to illustrate its defences while reporting to the Peshwa.

Dharwar was on the border between Mysore in the south under Hyder Ali and the Marathas to the north. To the east was Hyderabad, and until 1753 the fort was under a Mughal commander. It changed hands frequently, until it was finally captured from Tipu Sultan by the Marathas in 1791.

The map shows the bastions and walls in great detail, and some of the buildings inside the fort. There were four gates, the outermost facing north, and the three inner ones east. Parts of the town which lay outside the fort were drawn on separate pieces of paper, which were then attached to the fort plan. They were drawn in a schematic fashion, with none of the detail that is shown in the fort.



74

Bhiwai is in the Shekavati district of Jaipur state. This very lively scene depicts the forces arrayed during a siege of the fort. The buildings are depicted schematically, but great attention has been given to the different troops, which are all named, and obviously drawn from life. All the commanders have been named, and it should not be difficult to date the siege.

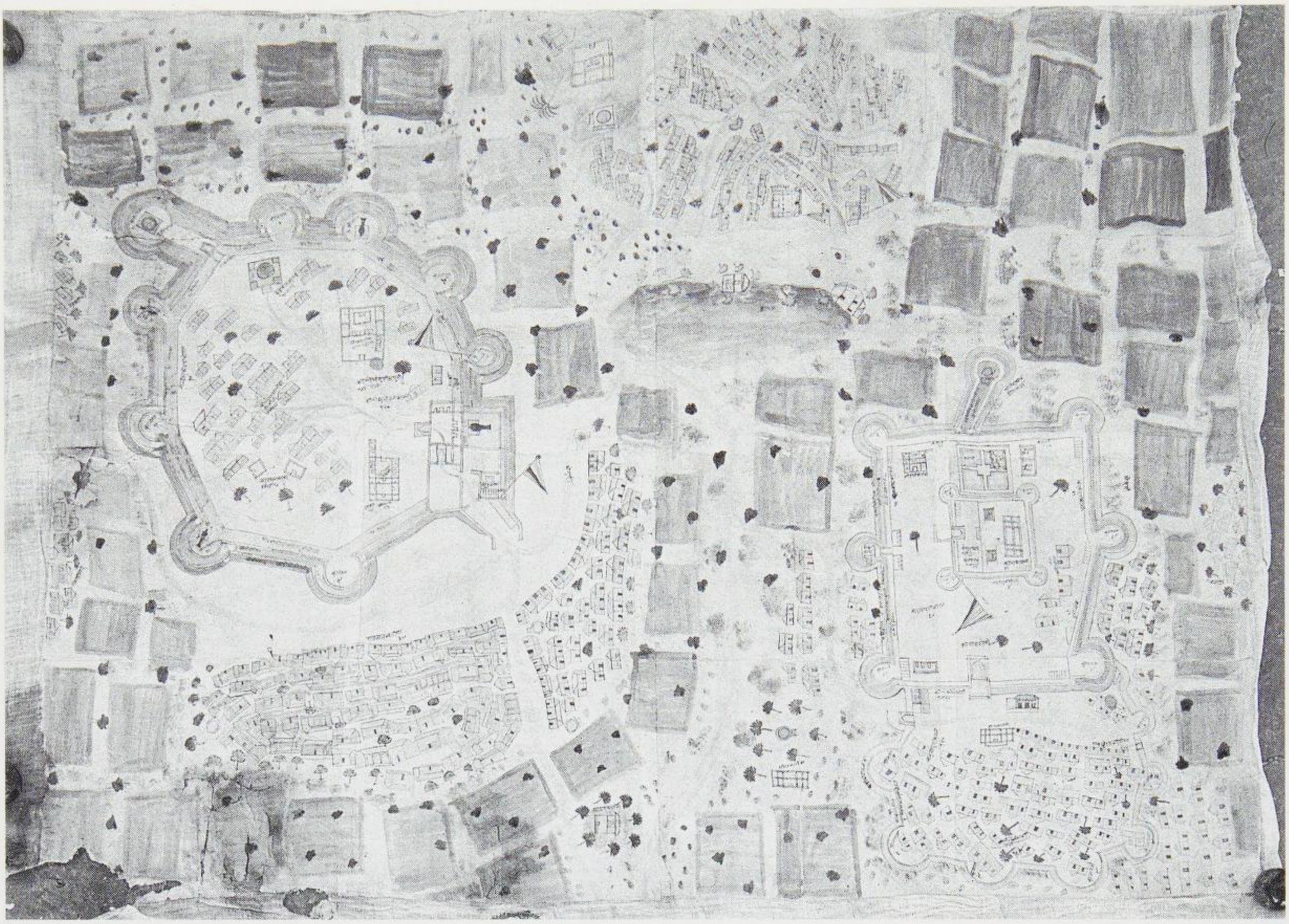
At the bottom right corner is Ahmed Husain's army, and next to it round the corner is Kawasji's camp. The line of figures between the guns and the walls are in a tunnel. Near them are the Naga platoon, almost naked. Through the hills on the left a footpath is marked, leading past Baghor hill to Khetari, the yellow square at the upper left corner. The Shekavati army was deployed in this area.

In the fort itself the main gate through the outer wall is shown on the left, and the gate to the inner part is round the square at the upper side, protected by the long walls on the right.

The map is in the collection at Jaipur and has not been dated. It is not in the same style as the Jaipur construction maps, and has far more of the folk element in it.

74

Title	[Siege of Bhiwai]
Size	168 x 123 cm
Language	Dhundari
Script	Devnagri
Material	Paper on cloth
Location	Jaipur: City Palace Museum
Cat. no.	48
Bibliography	—

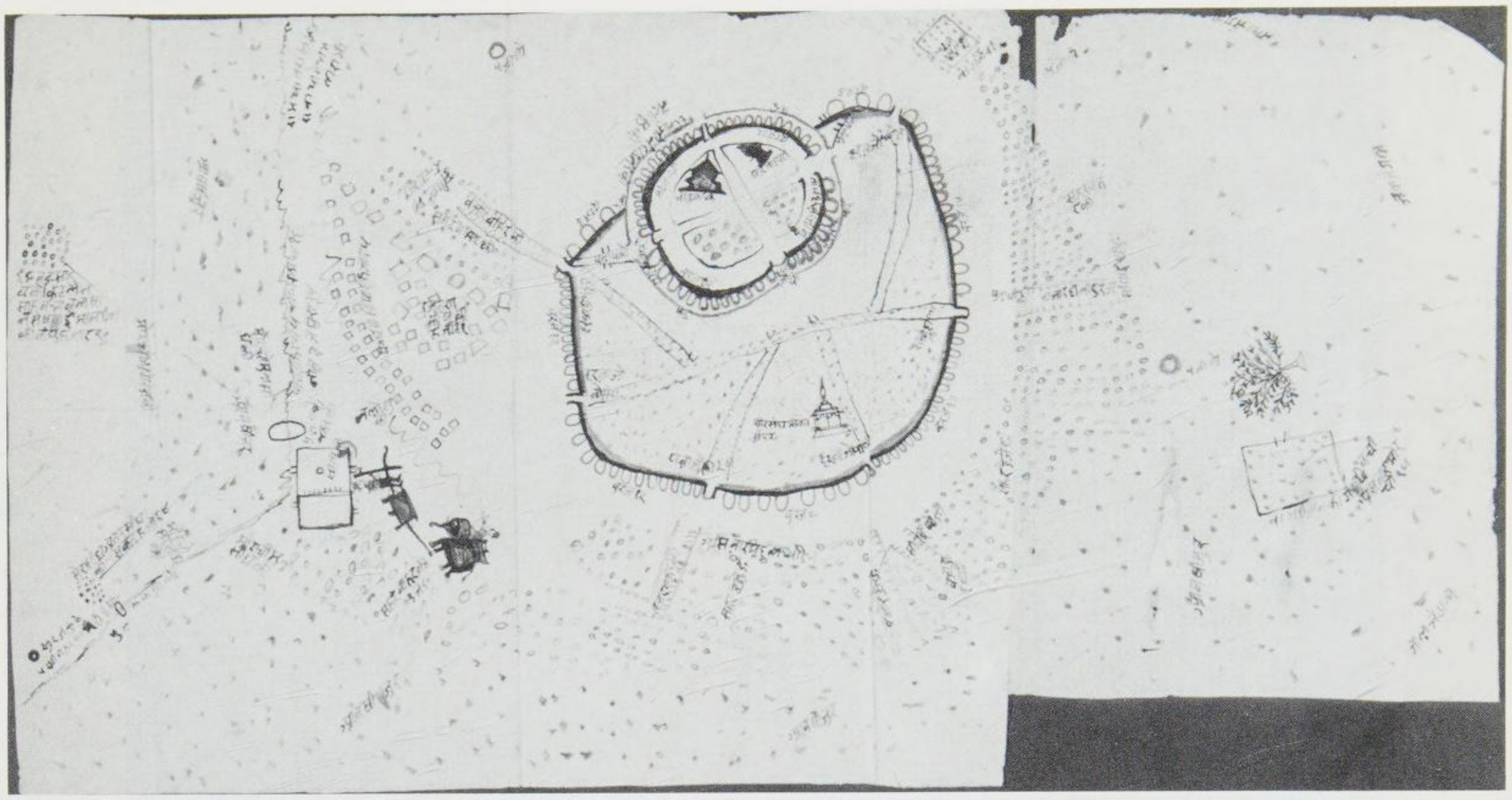


75
Title Baghor Fort
Size 160 x 118 cm
Language Dhundari
Script Devnagri
Material Paper on Cloth
Location Jaipur: City Palace Museum
Cat. no. 112
Bibliography —

75

Baghor, the square fort on the right in this map, is in Jaipur state, close to Bhiwai, seen in the preceding map [74]. Bhiwai is on the left here. The styles of the two maps are very different. This one gives detailed information about distances between bastions in the outer wall of Baghor fort, and names places within the fort, particularly the various temples. Athuni (West, on the left), and Uguni (East) are named. At the top centre the village of Selavad is named and the fact that it is on a mound. Between Bhiwai and Baghor, the house of Bahadur Khan is shown.

The map was obviously drawn to illustrate, or for use during the planning of, a campaign to attack the fort. The style of the houses and the green for fields give the impression of recent European influences, yet it can also be seen as a development from the Jaipur style of maps. In some ways it is most similar to a map of Sanganer [122], which is almost certainly of late 19th century date.



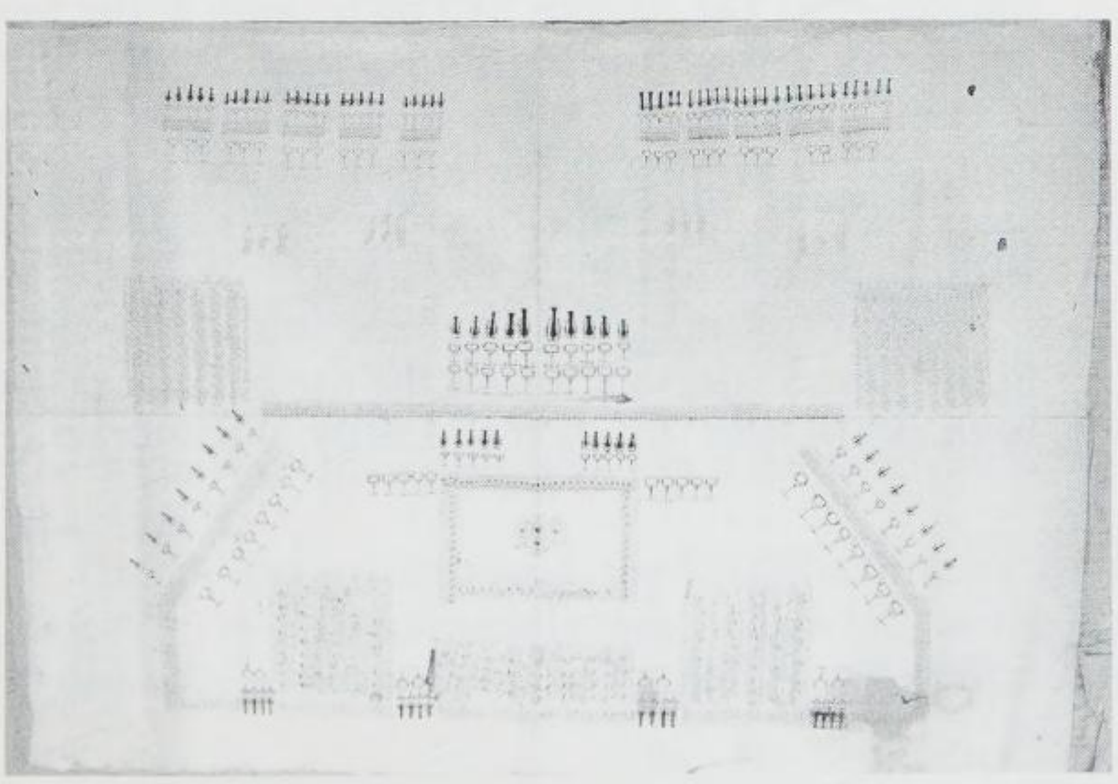
76
Title [Multan]
Size 80 x 41.5 cm
Language Hindi
Script Devnagri
Material Paper
Colours Black, red, green, blue
Location London: India Office Records
Cat. no. Acc. 1985
Bibliography —

76
Multan was captured by the British in January 1849 during the second Sikh war, which resulted in the annexation of the whole of the Punjab.

The text on this map makes it plain that it was drawn on behalf of the British army, and not for the defenders. At the left are shown the quarters of 'Lane Sahib', and the vertical zig-zag line on the left side, from the top and off to the left edge, is the English front line.

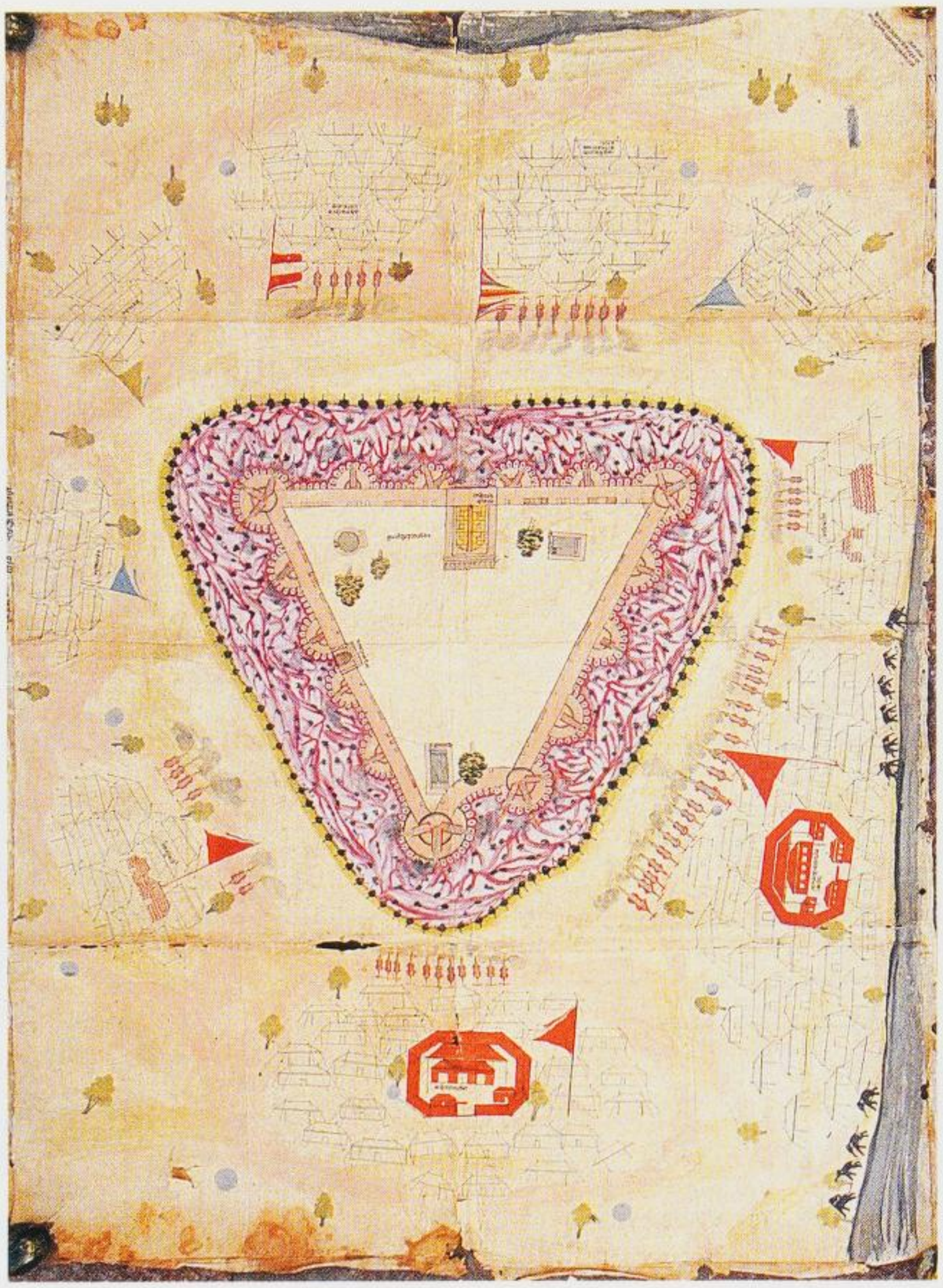
Much of the text refers to local features, such as a small bridge near the elephant and dooli bearer, and the little circle at the top is a brick-kiln. On the right the square garden belongs to the Dewan. Sepoy platoons are ranged in a semi-circle before the walls of the town. Within the town the main roads are clearly marked, and the way they connect to the town gates and to each other. The fort is also well marked.

The script is rough, and probably written by a person from Rajasthan. No name is given.



77
The lack of text on this small plan makes it difficult to identify. It possibly formed part of a textbook of military strategy, rather than depicting a particular battle. No attempt at dating it has been made.

77
Title [Battle plan]
Size 63 x 48 cm
Language —
Script —
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 46
Bibliography —



78	
Title	[Panhala]
Size	110 x 160 cm
Language	Dhundari
Script	Devnagri
Material	Paper
Location	Jaipur: City Palace Museum
Cat. no.	47
Bibliography	—

78

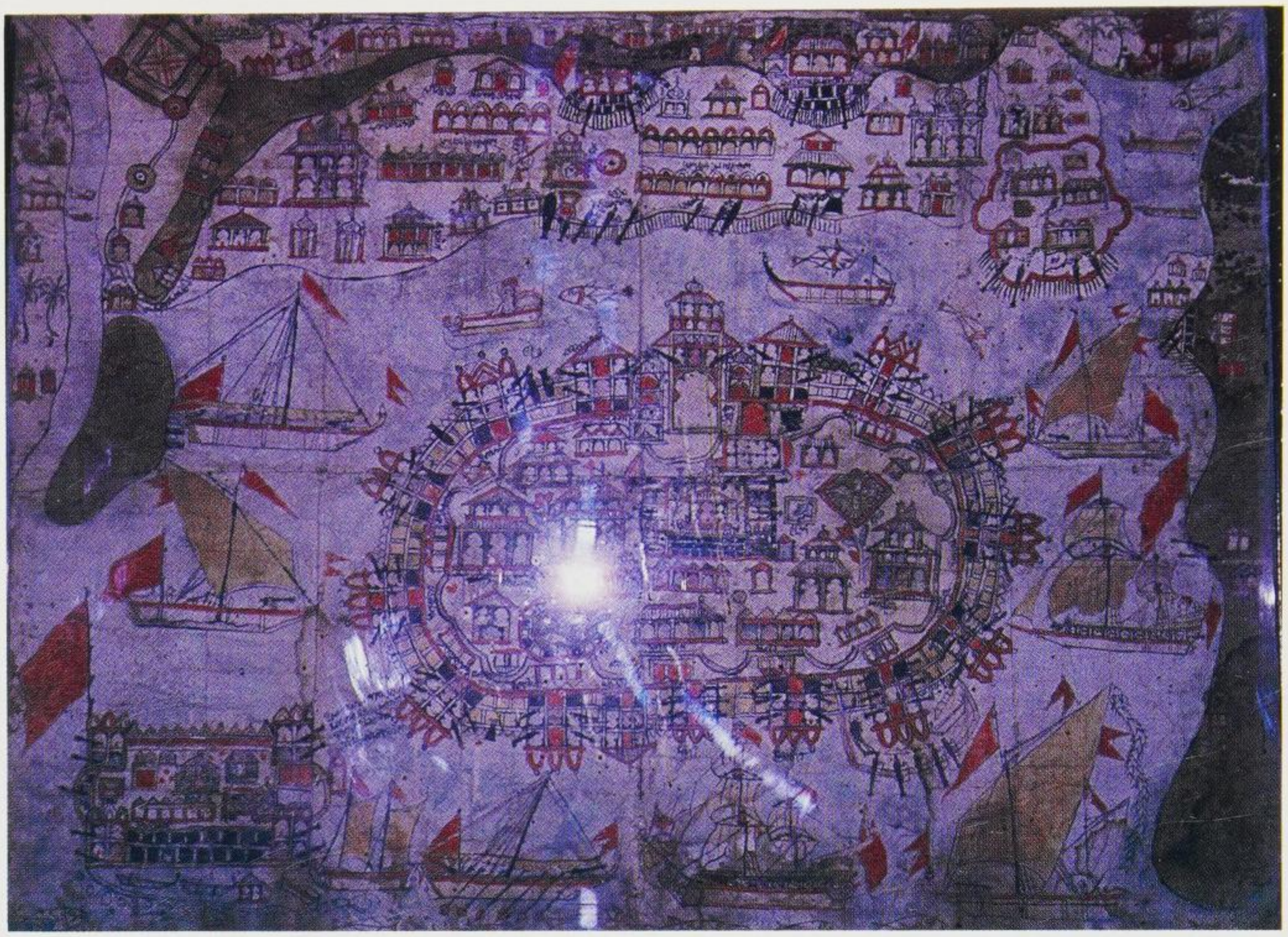
The inscription at the top right corner of this map records: 'In the bright half of Marg, 13th day of Samvat 1853 [1796 A.D.], this map was received by the Darogah Sahibram'. The persons named on the map, however, are from earlier in the century, during the emperor Aurangzeb's campaigns in the Deccan.

In 1665 Mirza Raja Jai Singh was sent by Aurangzeb to command the Mughal army in the Deccan, relieving Jaswant Singh of Jodhpur. In January 1666 Shivaji, who had been won over to the imperial side, attacked the fort of Panhala, held then by Bijapur. This map seems to relate to some other siege, perhaps during the reign of Sawai Jai Singh.

Two distances are given, at the upper left edge: from Satara 20 cos, and from Pune 10 cos. The writing is to be read from all directions, but the East Gate is named on the upper side of the triangle.

The headquarters of each force is shown in detail, with the Emperor's tents at the lower right, the Shahzada's [Crown Prince] at the bottom, the army commander's at the left, and beyond, the camp of the Rohillas. The Sayyids had their camp at the top left corner, next to the Rathor Rajputs. To the right of them is the camp of the raja of Abaneri, with the camp of the Pathans at the corner, and the Wazir's camp next to the emperor's. Within the fort two water tanks and a well are named.

Whether the map dates from the time of the siege, or was drawn later to illustrate the campaign, has not been established. Nor is the identity of Sahibram.



79

Title	[Janjira]
Size	95 x 70 cm
Language	Marathi
Script	Modi
Material	Paper on cloth
Location	Pune: Raja Dinkar Kelkar Museum
Cat. no.	—
Bibliography	Tikekar in *Illustrated Weekly* , March 20, 1949, pp. 36-37

This colourful map is now in very poor condition, with the colours fading fast, but likely to be restored soon. It is one of the few maps that has been published and described, as long ago as 1949, when the colours were much brighter.

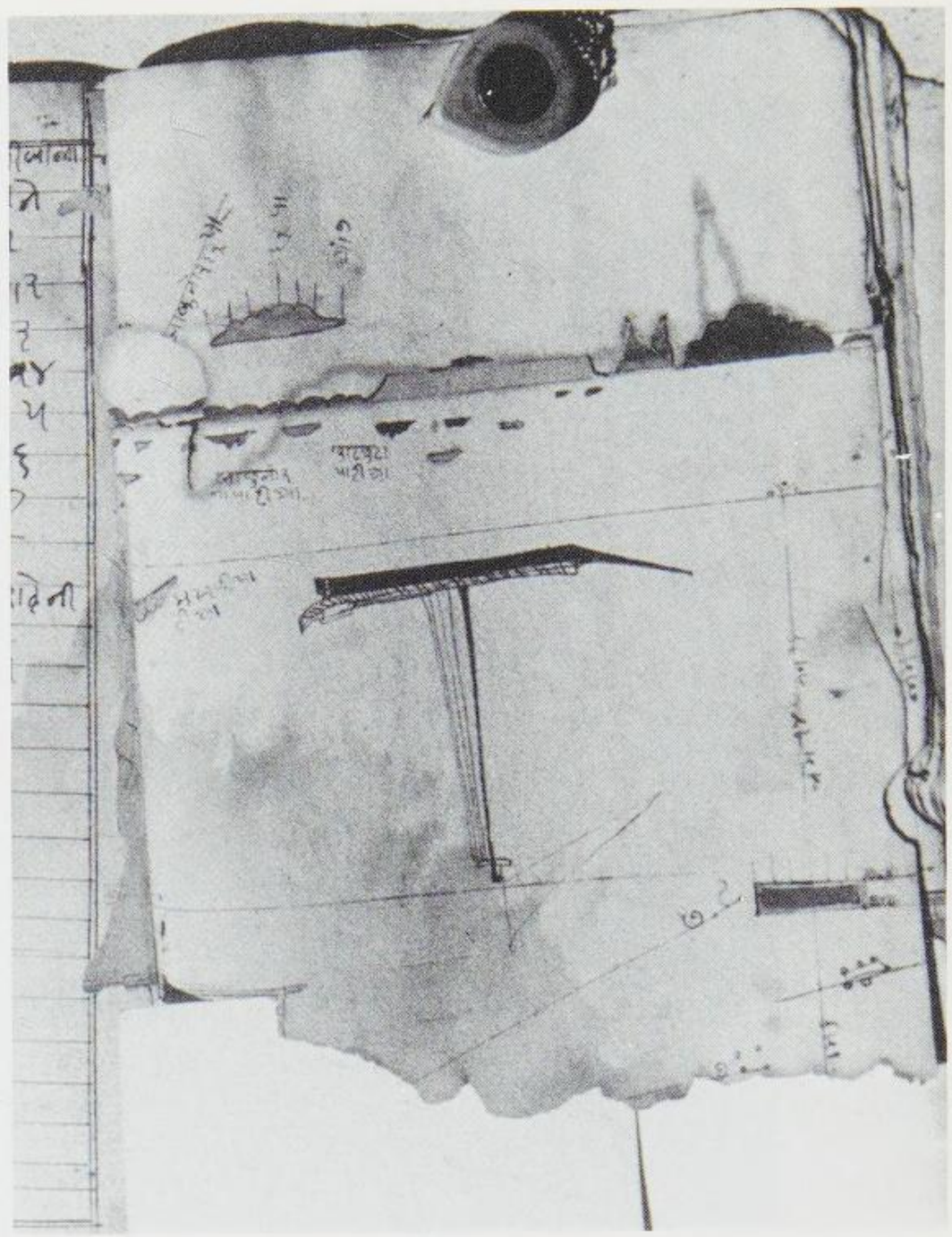
Janjira is a small rocky island about 45 miles south of Bombay near the entrance to Rajpuri creek. East is at the top of the map, as was customary with Maratha maps. For long Janjira was the home of the Sidis, immigrants from Ethiopia, who had a small state along the coast and Janjira as their main fortified centre. This map depicts an engagement in the long and unsuccessful struggle of the Marathas to dislodge the Sidis, perhaps one of the battles of 1758–61, according to the names of the commanders mentioned here.

On the island, the main gate is on the eastern side. Bastions around the walls are named, and their guns depicted. In the centre of the fort is the ammunition store, with the treasury below it. Two palaces are named, and the haveli of the commanding officer. At the lower left corner another island fort has been shown, the Padma Durga, and a notice that the distance might seem small, but it is actually three cos away.

On the eastern mainland, the Maratha forces are named. Their headquarters was in the fort at the right, under the command of Ramaji Pant Biwalkar, with Naro Trimbak beside him. The central position was taken by the Angres, the naval commanders. Important buildings have also been shown. The three-domed building on the left is the tomb of Sidi Hasan Said, with other tombs to the right above it. Three Dutch factories have been named, near the tombs.

The script is in Modi, and might have been added later. The artist's name is not known.

80	
Title	[Charts from a seafarer's manual]
Size	Five pages, each approx. 21 x 29 cm
Language	Kutchi
Script	Gujarati
Material	Paper
Colours	Black, red, orange, green
Location	New Delhi: National Museum
Cat. no.	Mss. 82.263
Bibliography	Arunachalam in *The Indian Ocean*, pp. 203–21



80.1

80

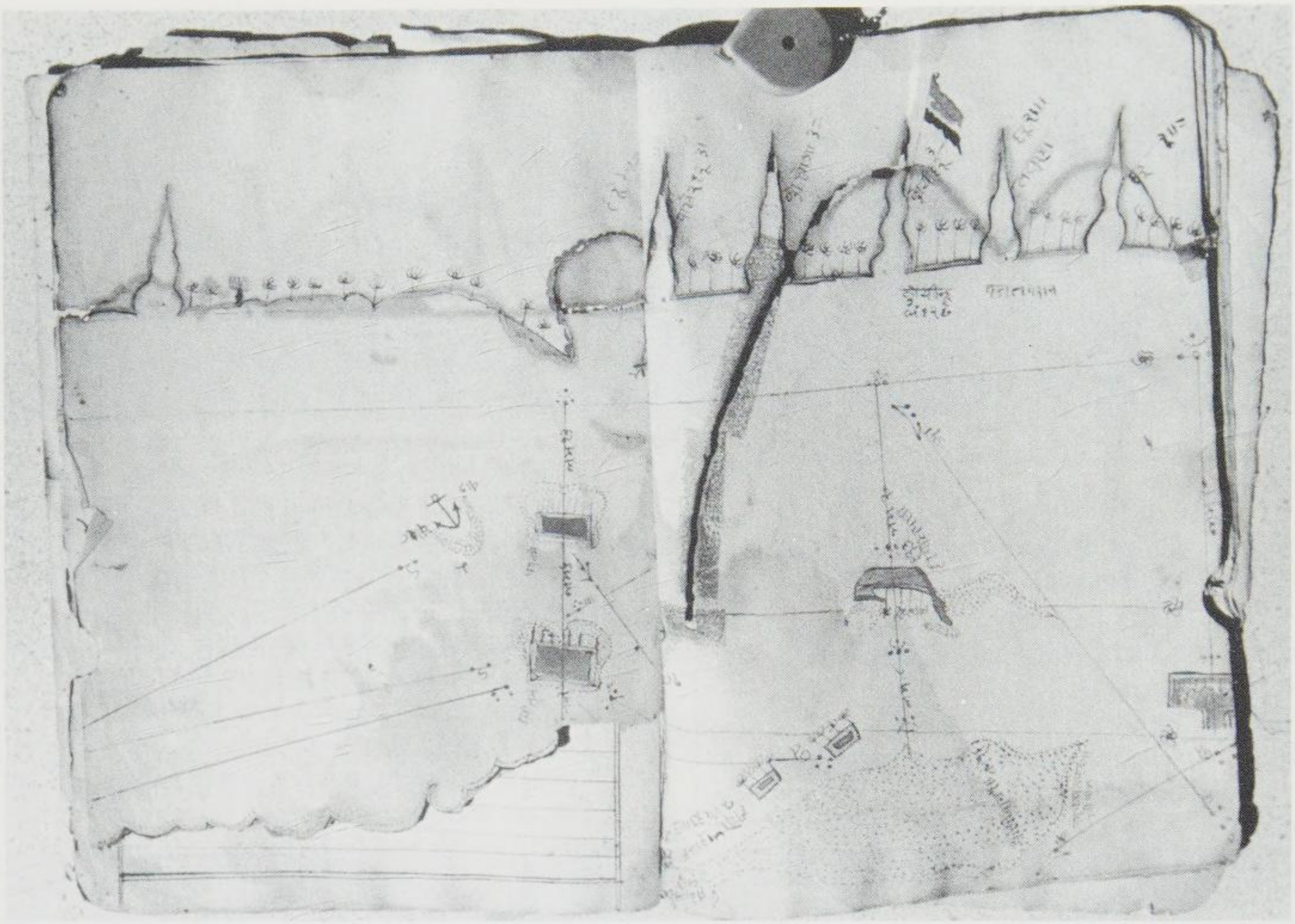
These five pages of charts are from the manual discovered recently in western India. On the last page of the manuscript is the date 1664, but it is not known whether this is the date they were first drawn, or when this particular copy was made. Professor Arunachalam has studied them, and stated that 'every line has a purpose and a meaning'. They cover five separate parts of the southern coast of India and Sri Lanka, only the last two pages being contiguous. Stellar rhumb lines and depths are written, though some of them refer to points beyond the area covered by the maps, perhaps from missing pages.

80.1. This section is from the South Kanara coast, with the island of Bakanor named at upper left. On the coast, outlines of hills are shown. Parts of the shore and some of the islands are shaded red, which may indicate the reddish appearance of laterite caps on the shore and rocky, as opposed to sandy, islands. The writing to the left of the islands reads 'shores of Bacanor', but that in the centre warns of 'troublesome shores'. The small island on the left is either 'shore of Maski' or 'Pattea rocks' (the script is not clear). The long boat with sail perhaps indicates that it is safe to anchor here in deep water. The red rectangle at lower right may be an island conventionally drawn, but unnamed. It was clearly of some significance navigationally since stellar rhumb lines are drawn from it.

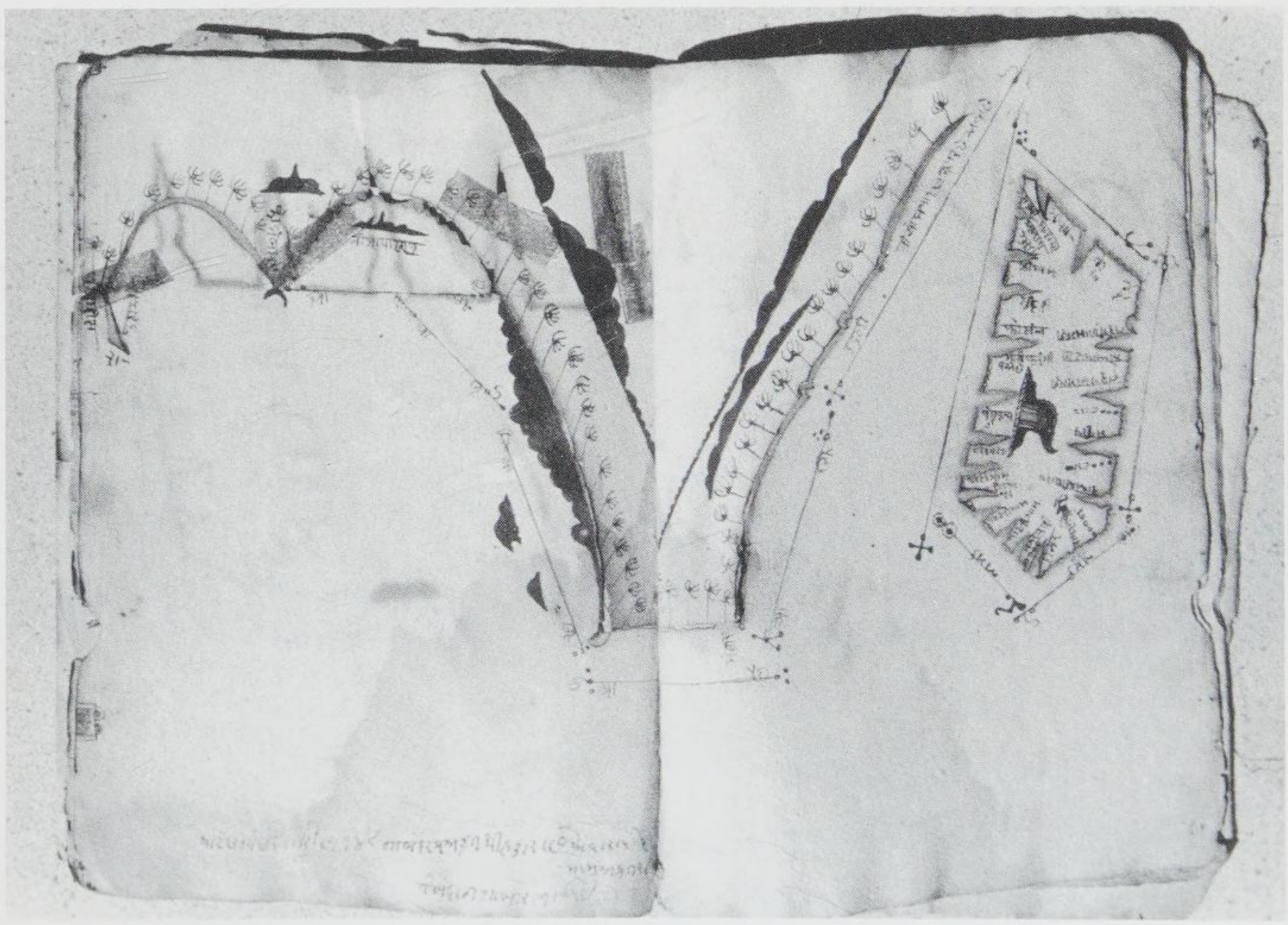
80.2. There are no names on the coast in this chart, making it hard to identify. Most probably it shows the palm-studded coast just north of Mt Dilli and Cannanore. The name of one island is illegible, while the lower, larger one is named simply 'Two islands'. Depths and stellar rhumbs are indicated. To the north of the first island an anchor is drawn within the crescent of a shoal.

80.3. The many names on this chart identify it as the harbour of Cochin (the offset showing through from the next page should be ignored). On the shore, from the left, are Parur and Konega (possibly Cranganore). The 'port of Cochin' is written in the sea, with 'Vadathavaran' to the right of it. Inland is the shorter form, 'Thavaran'. In the centre is the island of Kalpeni, with a shoal drawn to the south of it. At the bottom is a large area of shallow water, and on the left is a note that the lighthouse here is out of order. The red figure at the right is possibly an island.

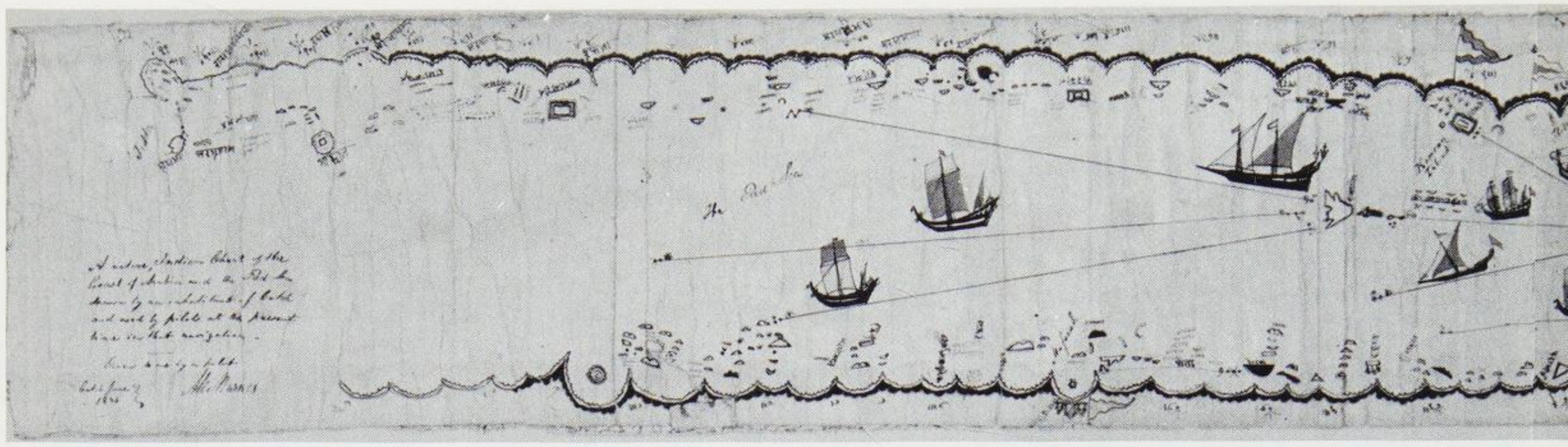
80.4 and 80.5. This chart and the one adjacent to it show the coast at the southern tip of India. The island of Ceylon on the right is shown as an inset. On the left is Kayankulam, and on the next headland is Quilon. In the bay to the south of Quilon is the island of Tigapatan. To the right of the name Kayankulam is an unidentified name, Kalasa?. The two islands are unnamed. At the right tip of the southern coast is the name Manappad. Around the Ceylon coast are several names: Maraavi, Marache, Salag, Shigam, Lundari where the foreigners live, Columbo, Tarvala, Alegam and Dona on the west coast. On the east coast are: Gallegam, Walegam, Musara (or Matara), Dhanor, Ravankuta, Ras Sigala, Mavik, Triconamalai, Jhokapatan, and again Triconomalai, and Patan.



80.2 *80.3*

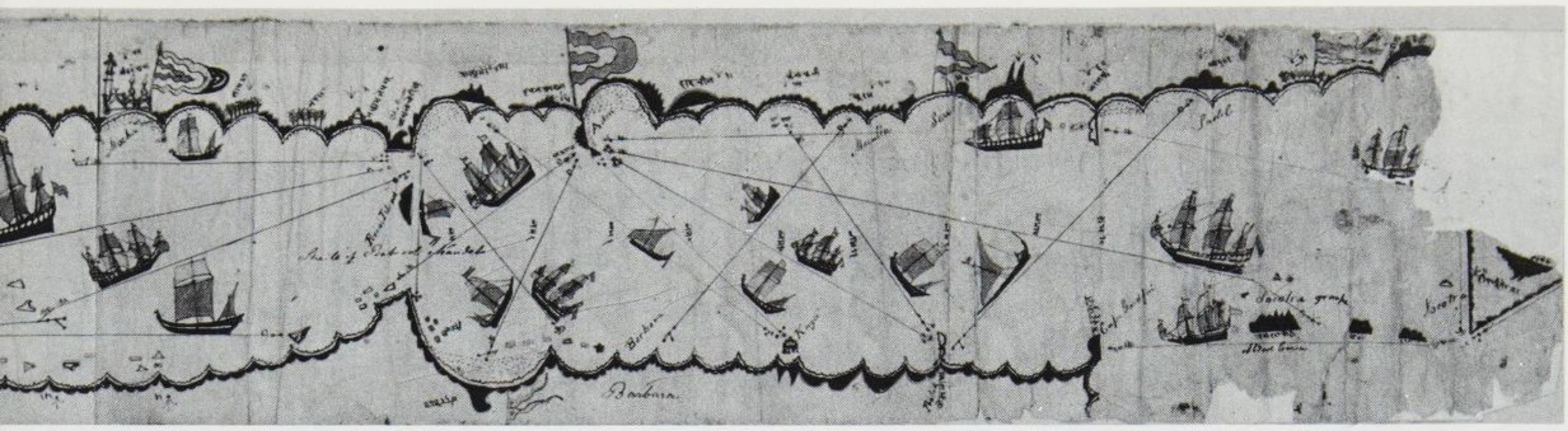


80.4 *80.5*

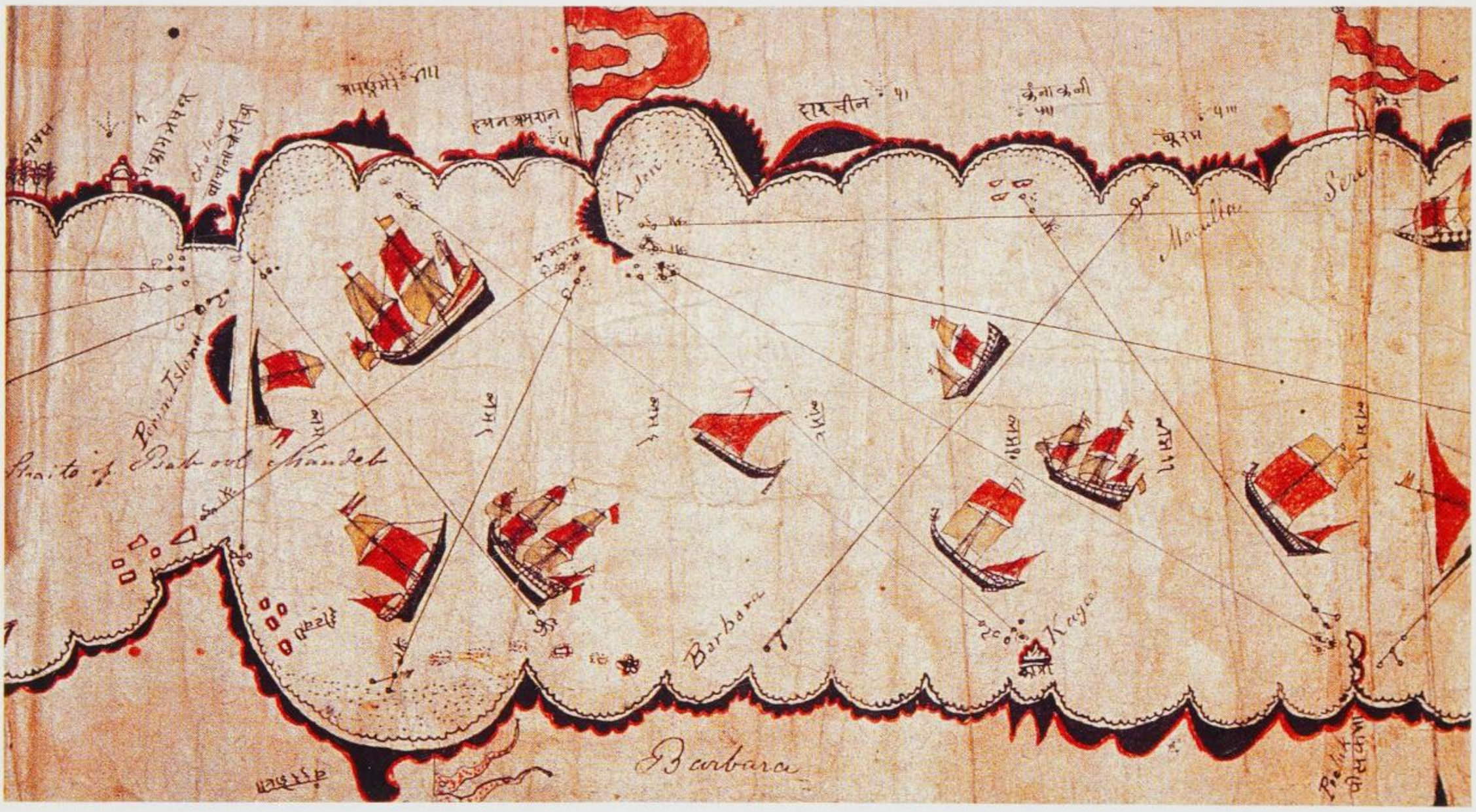


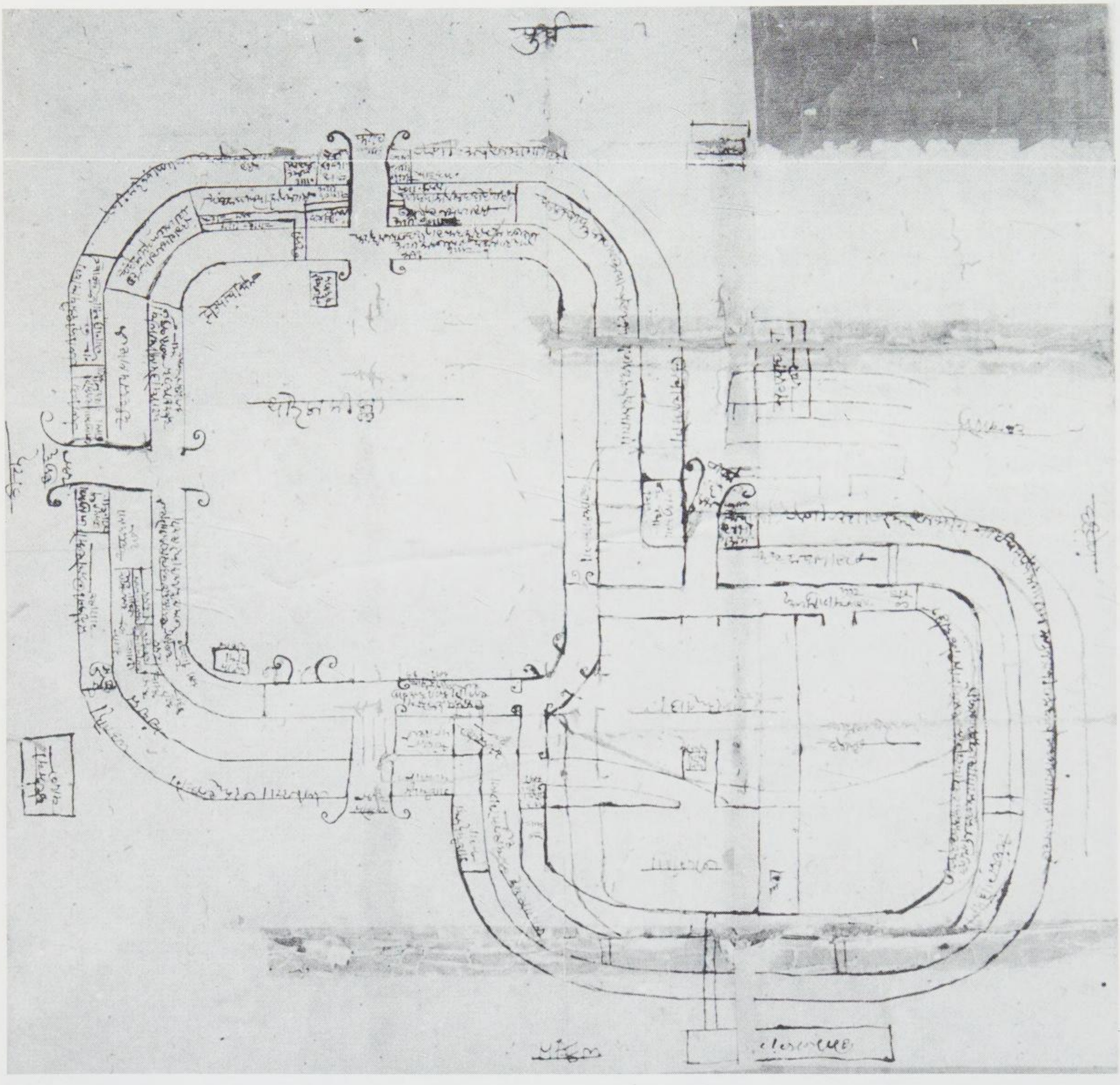
81	
Title	Chart of the Coast of Arabia and the Red Sea
Size	195 x 24.5 cm
Language	Kutchi, with added English
Script	Gujarati
Material	Paper
Location	London: Royal Geographical Society
Cat. no.	Asia S.4
Bibliography	Burnes in *JRGS*, Vol. VI, pp. 23–29

81. Alexander Burnes (1805–1841) of the Bombay Infantry sent this chart to London to accompany a paper for the Royal Geographical Society. It was 'in the very state' in which he received it, probably as it is now, with the back strengthened with old paper containing household accounts of a Gujarati family. Burnes had acquired it from the 'moalum', pilot, of the boat which carried him from Bombay to Kutch in May 1835, the boat having just completed the voyage from these very ports shown on the map. Burnes was also shown the Kutchi copies of English charts which had been brought 'a hundred years before' from Holland by Ram Singh, and he found no similarity between them and this 'native' chart. (The titles of the English charts that Burnes gives suggests that they were early 18th century English charts by John and Samuel Thornton.)



There is no regard for latitude or longitude on the chart, so the angle of the coast at the south-west tip of Arabia is not shown. At top left is Jedda, and in the middle of the same coast is Mocha. After the narrowing at the Straits of Bab-el-Mandeb the bay of Aden is shown. At the lower right corner is Cap Gardafui, and, at the extreme right (torn) edge, part of the island of Socotra. Until more such charts are studied, if they still exist, it is difficult to know how far they were a development of the area, or whether they were adaptations of western charts.





82.1

82

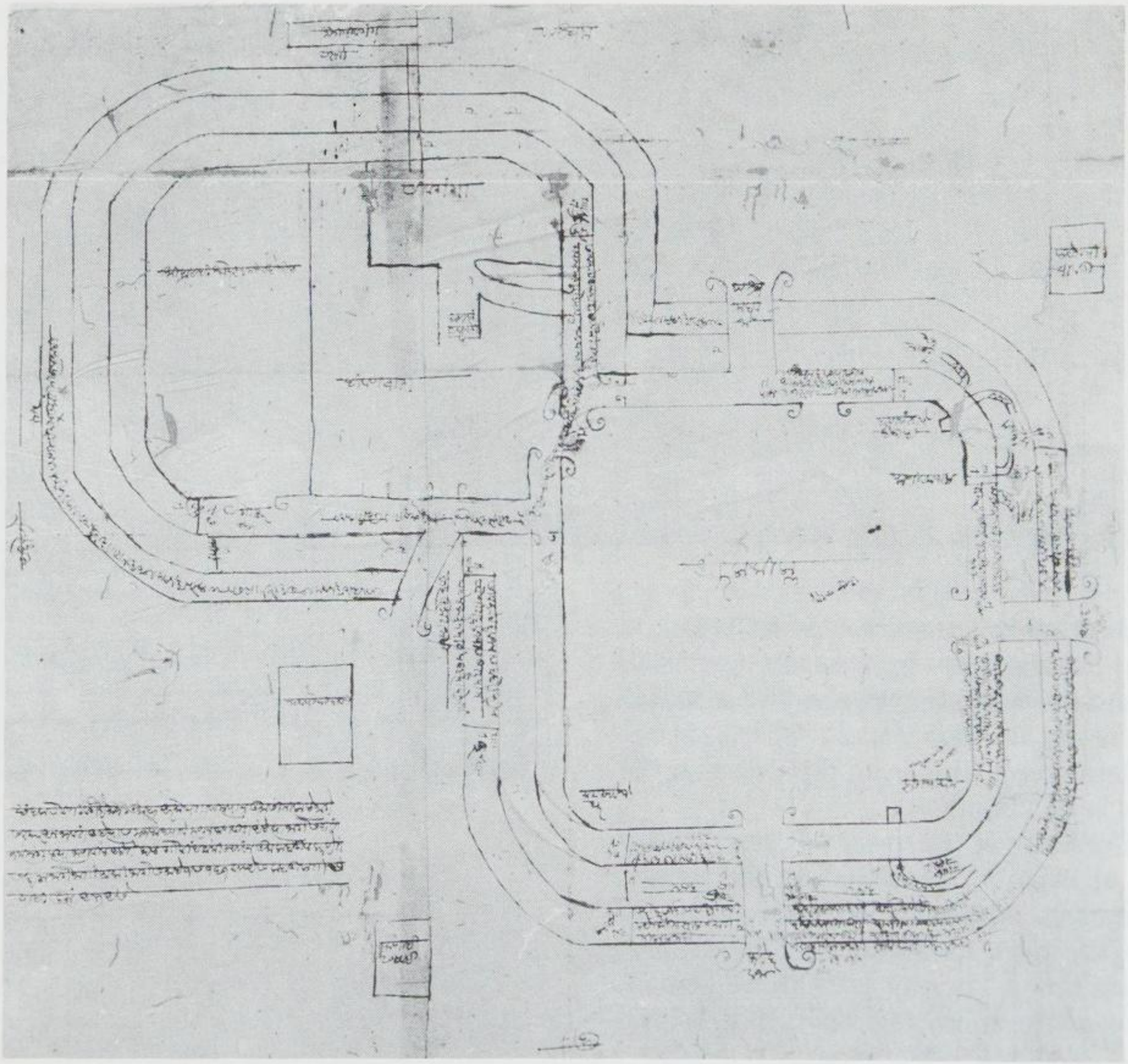
No date has been discovered for these plans of Thanjavur in south India. Since they are written partly in Modi script, they certainly date from the time of the Maratha rule. This began in 1676, and ended when Raja Sivaji died without heir in 1855, and the British took it over.

The fort was attacked by the French in 1758, and in 1773 and 1776 it was temporarily under British occupation. It is possible that both the maps are from this last period.

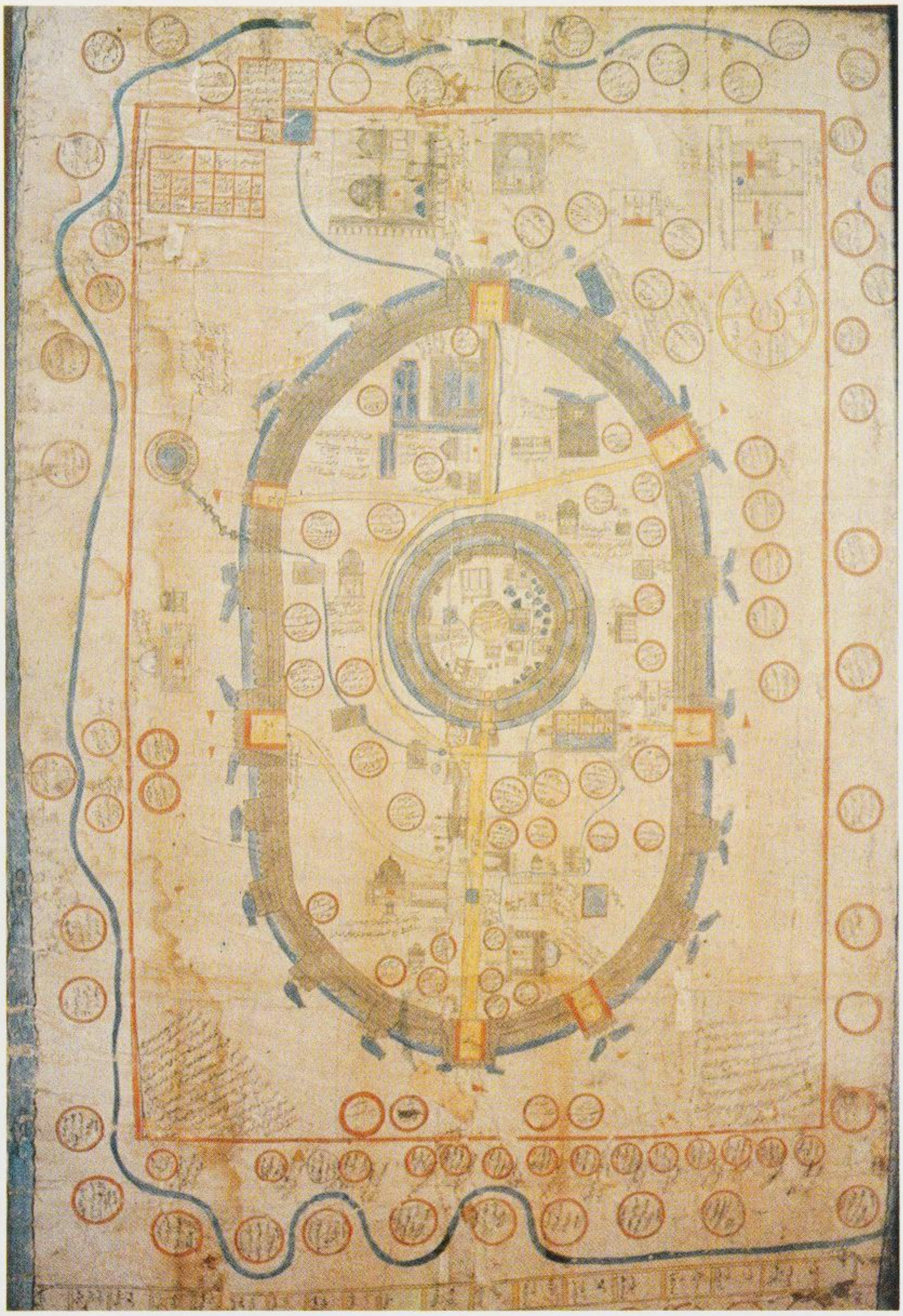
They are obviously two copies of the same plan. No. 82.1 is rougher, and contains corrections, so it is perhaps the earlier. When the writing was done for No. 82.2, much of it was oriented with West at the top, whereas in the other copy, writing with East at the top predominates. All four directions are named.

The moat and walls are carefully depicted, and the gates are named. The larger fort is called simply 'Large Fort', while the smaller is called 'Sarkar Wada' in one and 'Dewan Wada' in the other. Both mean the administrative area. The maps have not been fully translated, but in one corner of the smaller fort is an inscription that the first fort had been built here in 1560.

82	
Title	[Thanjavur]
Size	.1 55.5 x 54.5 cm
	.2 53.5 x 54.5 cm
Language	Marathi
Script	Devnagri and Modi
Material	Paper
Location	Thanjavur: Saraswati Mahal Library
Cat. no.	—
Bibliography	—



82.2



83, 84 and 85

These three maps of Bijapur are obviously from a single original; possibly the one from Bijapur itself is the oldest, and the two in Hyderabad were copied from it. Particularly the one named 'Ark' [85] appears to be a later copy. It is from this one that the translation has been taken.

The long inscription at the lower left gives details of the district of Bijapur, while that on the right is about the town itself. A slanting inscription at upper left notes that the town has been built, destroyed, and rebuilt seven times. The city gates are all named, and also tombs of the more famous rulers. Within

83

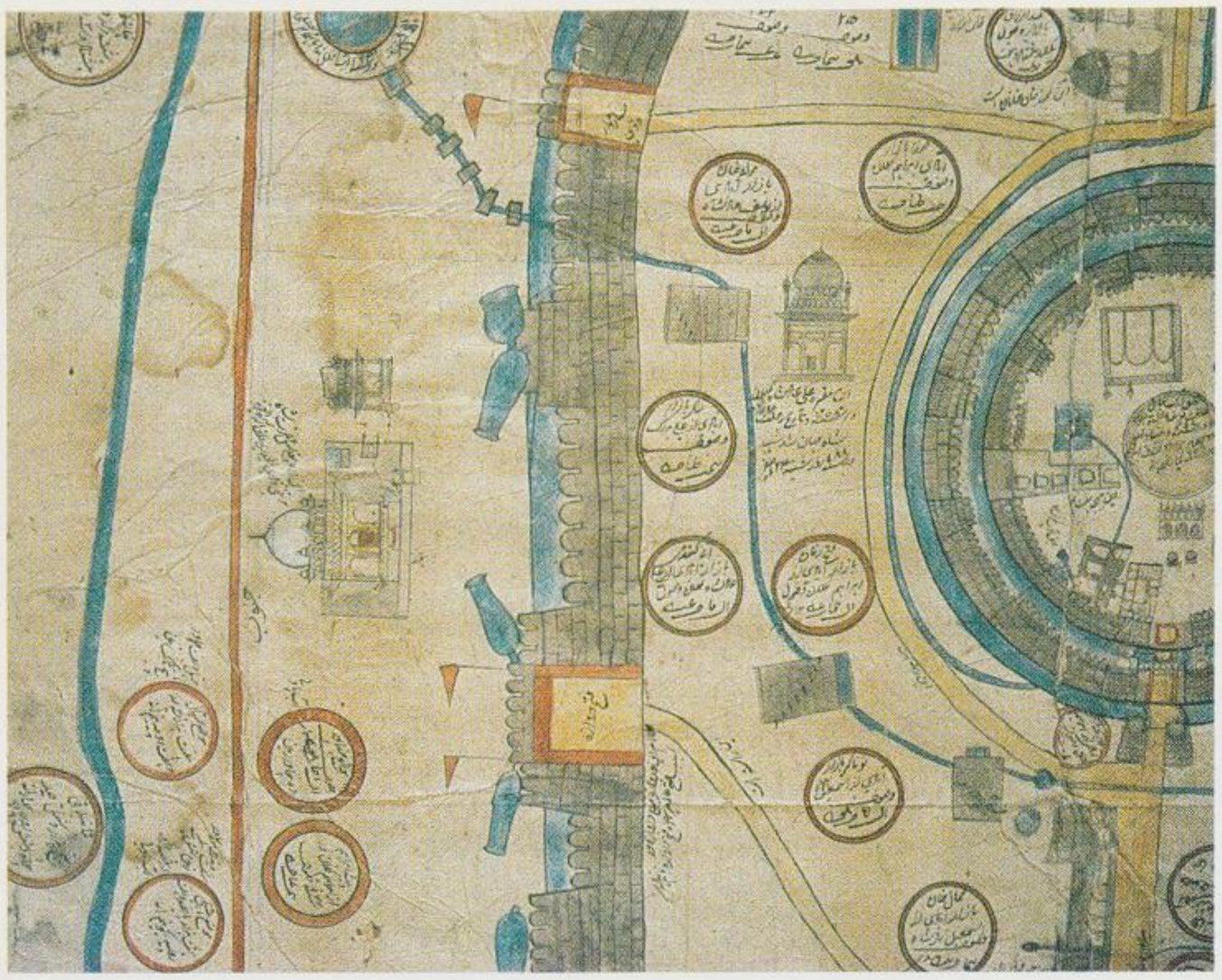
Title	[Bijapur]
Size	102 x 149 cm
Language	Persian
Script	Persian
Material	Paper on cloth
Location	Bijapur: Archaeological Museum, Gol Gumbaz
Cat. no.	—
Bibliography	Cousens in *Bijapur and its Archaeological Remains*, pp.3, 4, and 23; used as ground design for Karnataka Tourism brochure

84

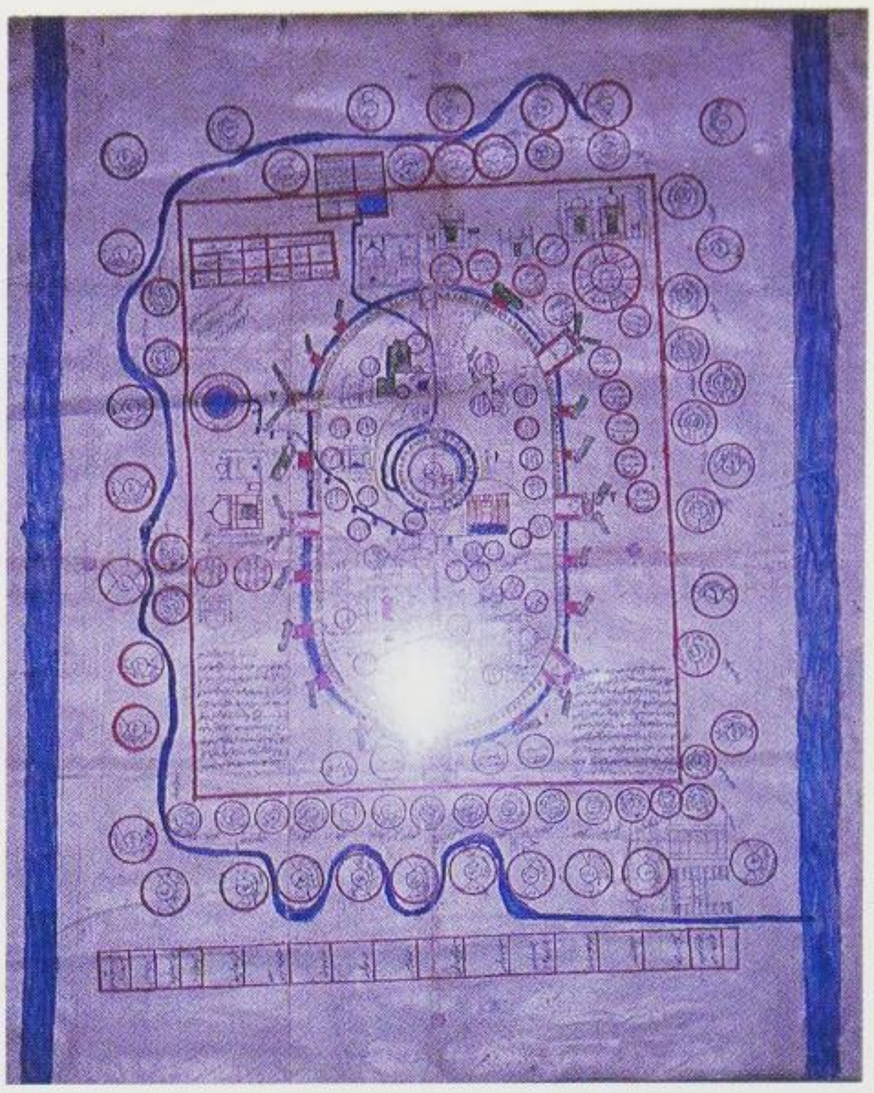
Title	Bijapur
Size	71 x 90 cm
Language	Persian
Script	Persian
Material	Paper
Location	Hyderabad: Andhra Pradesh State Archives
Cat. no.	—
Bibliography	—

85

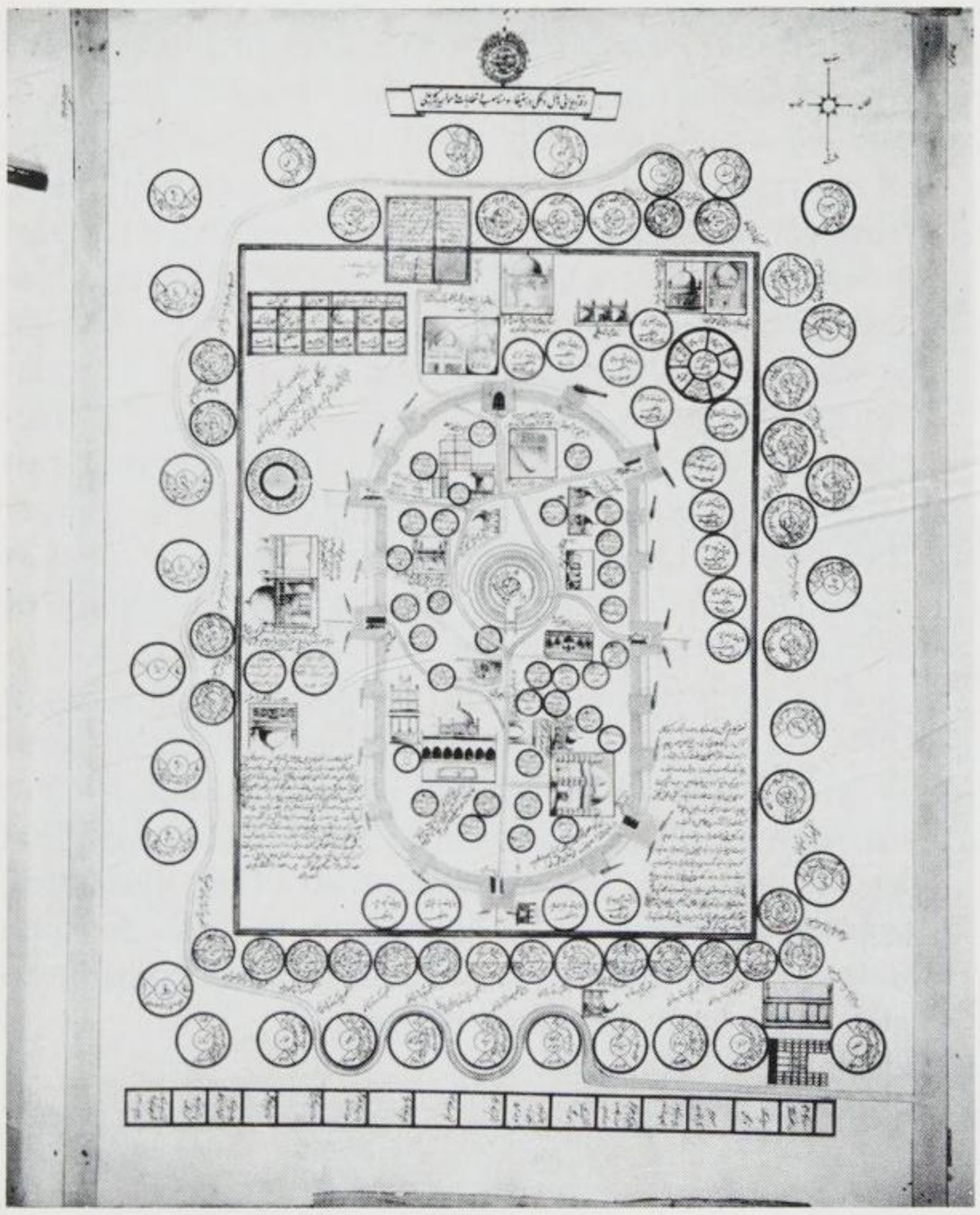
Title	Ark Fort (Bijapur)
Size	43 x 60 cm
Language	Persian
Script	Persian
Material	Paper
Location	Hyderabad: Andhra Pradesh State Archives
Cat. no.	—
Bibliography	—



83a. The ruined dome on the tomb of Ikhlas Khan.



84



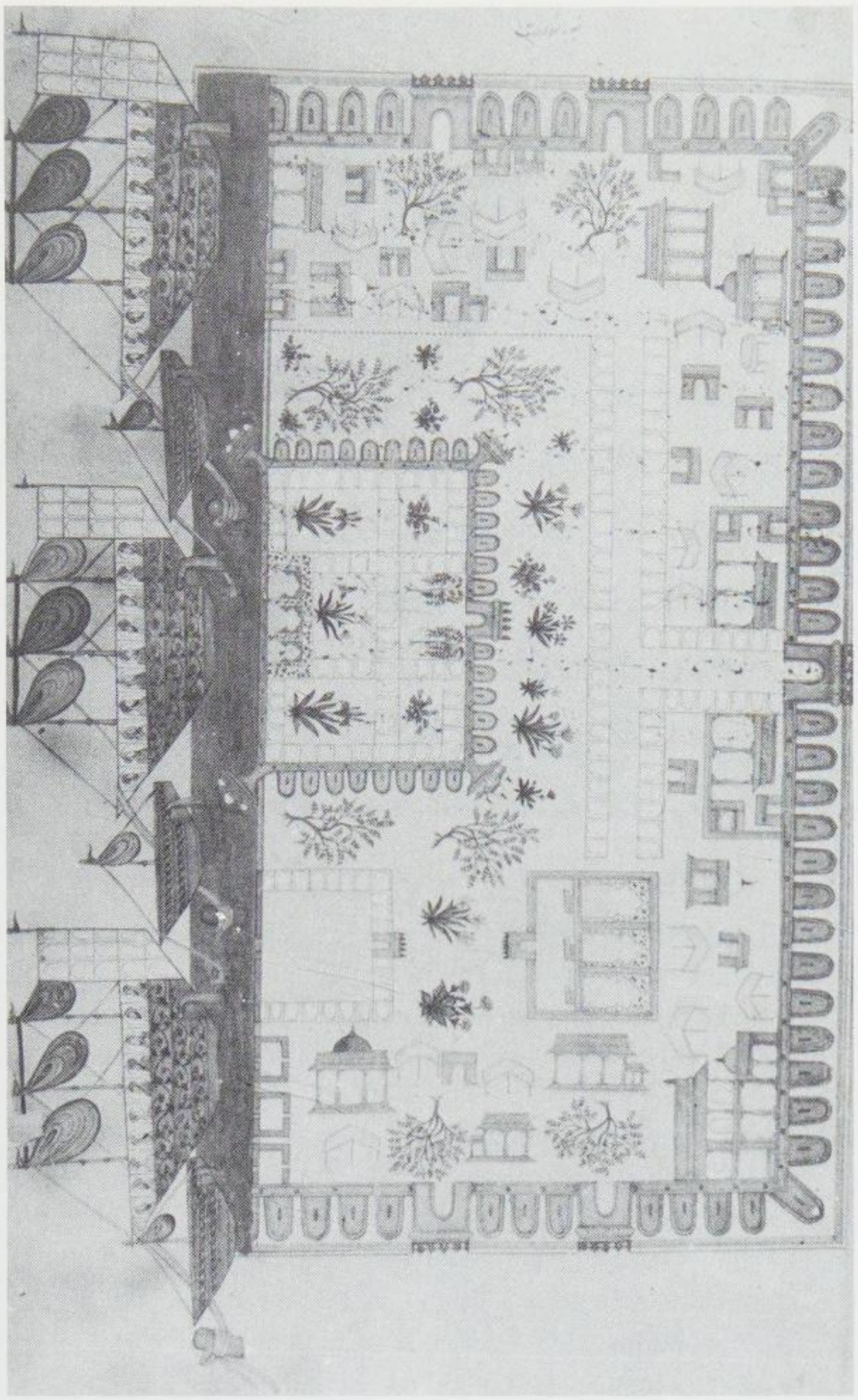
85

the city wall, the large mosque in the lower left quarter was built during the time of Adil Shah, 985 A.H. Across the road, is the Gol Gumbaz, built during the period of Sultan Mahmud Adil Shah. On a Tuesday, 3rd of Mohurram, 1067 A.H., he died, and the mosque was commenced that very day. Outside the fort wall at centre left is the tomb of Shah Murtaza Qadri Al Hyderi, a saint, who died in 1033 A.H. Above it is the tomb of Ikhlas Khan, and during the time of Emperor Alamgir [Aurangzeb] the dome was struck by a cannon ball and half of it was destroyed. This took place during the seige of Bijapur in 1686.

At the top of the map is a square tank, with the legend that a canal was built to the fort of Ark in Bijapur, and there the water falls into a pond. It is sweet water, from which the citizens drink.

The large guns round the wall have been carefully drawn, especially the huge one for which the famous Hyder Tower was built, at the upper right corner.

Round the outside circles depict the neighbouring villages, and for each the revenue has been noted. Boxes at the bottom list the districts of the kingdom. The writing between gives the number of wells and streams. The river on the right is the Bhima, and that on the left the Krishna.



86.1. Surat

86

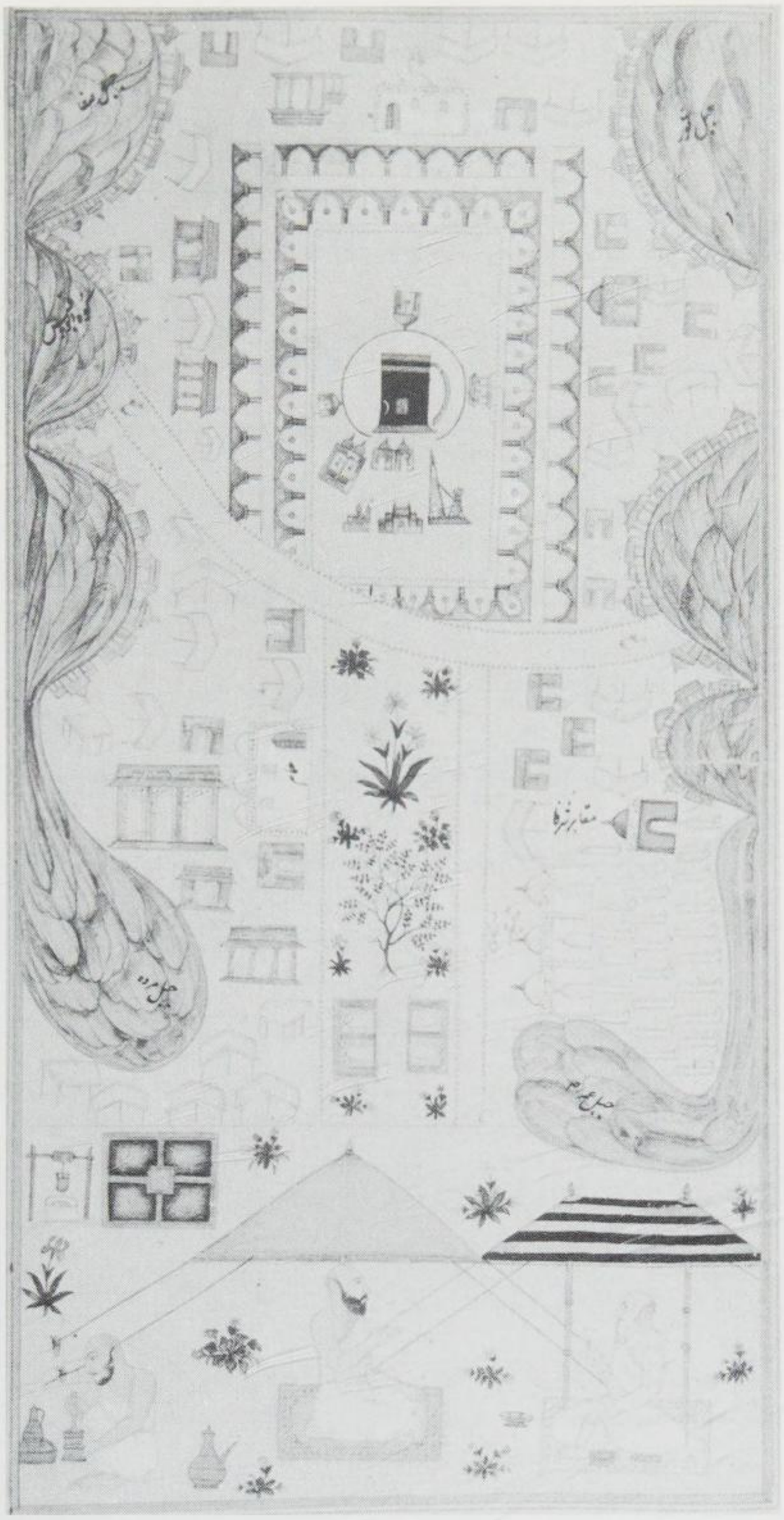
Title	[Plans from *Anis al-Haj*]
Size	Each page c.24 x 40 cm
Language	Persian
Script	Persian
Material	Paper
Location	Bombay: Prince of Wales Museum
Cat. no.	—
Bibliography	Gorakshkar in *Facets of Indian Art*, pp. 158–67

86

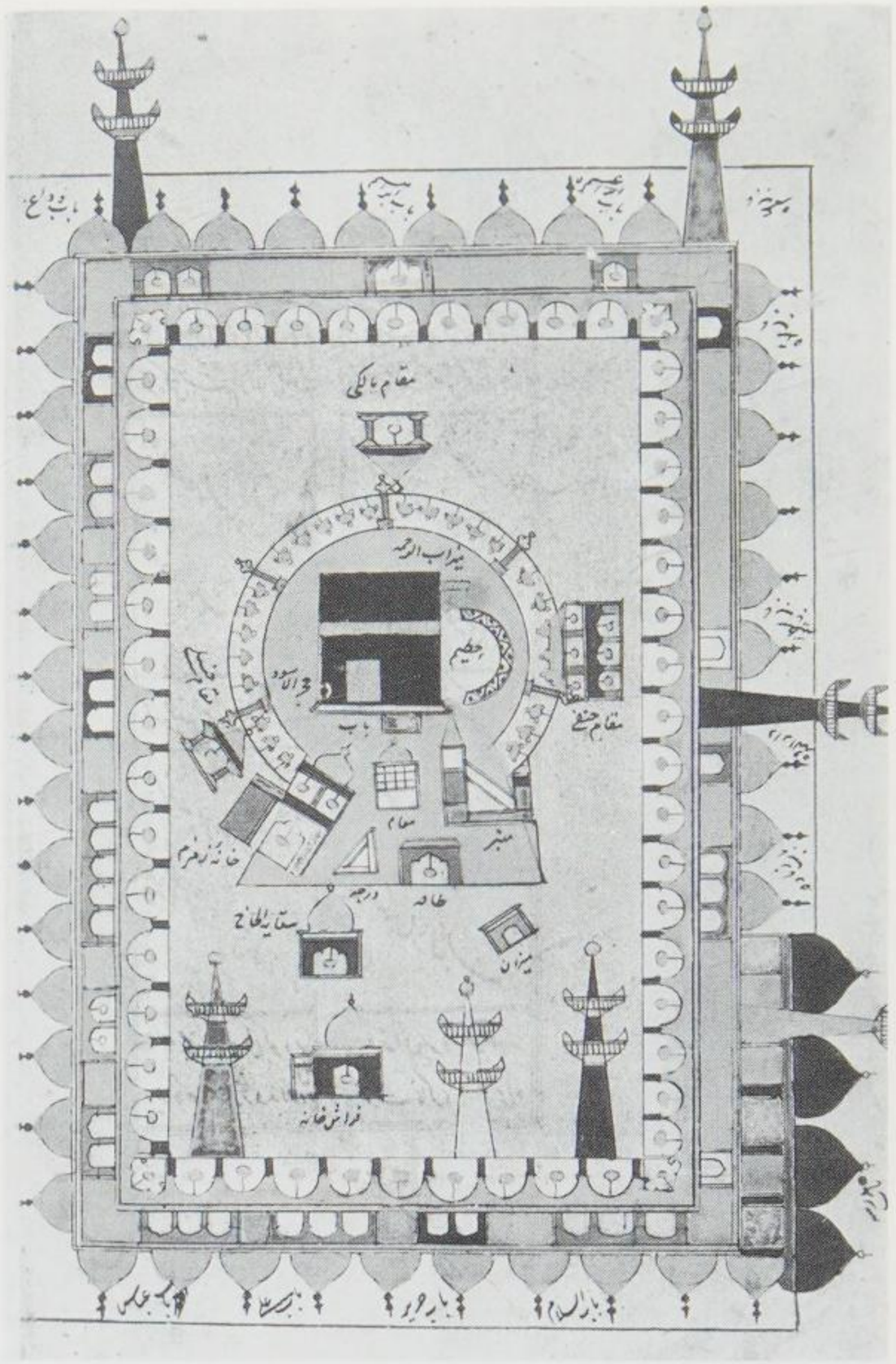
At first glance the illustrations in this manuscript description of a pilgrimage to Mecca appear original, and impressive. The author was Safi bin Vali al-Qazvini, who had written a commentary on the Koran, and received the expenses for his journey in 'recognition of his scholarship', as suggested by Dr Gorakshkar. His patron was Zeb un-Nisa, daughter of the emperor Aurangzeb, and he made the journey in 1676.

No other map of Surat identical to this one has been found so far, but it is likely that they existed, and were perhaps available to pilgrims, as were maps of the Hindu and Jain shrines. A manuscript in Paris, however, contains a map of Mecca which pre-dates Safi bin Vali's by a hundred years (Bibliothèque Nationale Suppl. Persan 1389): 'Description en vers de la Mecque et de Médine et des cérémonies de pèlerinage par Mohyi Lari, manuscrite, copié à la Mecque en 982 H' (1574 A.D., f. 19v). Though not identical, one can see how similar the two maps are; there were possibly other examples to copy from as well. The mixture of plan and elevation is typical of so many of the early maps, not only from India.

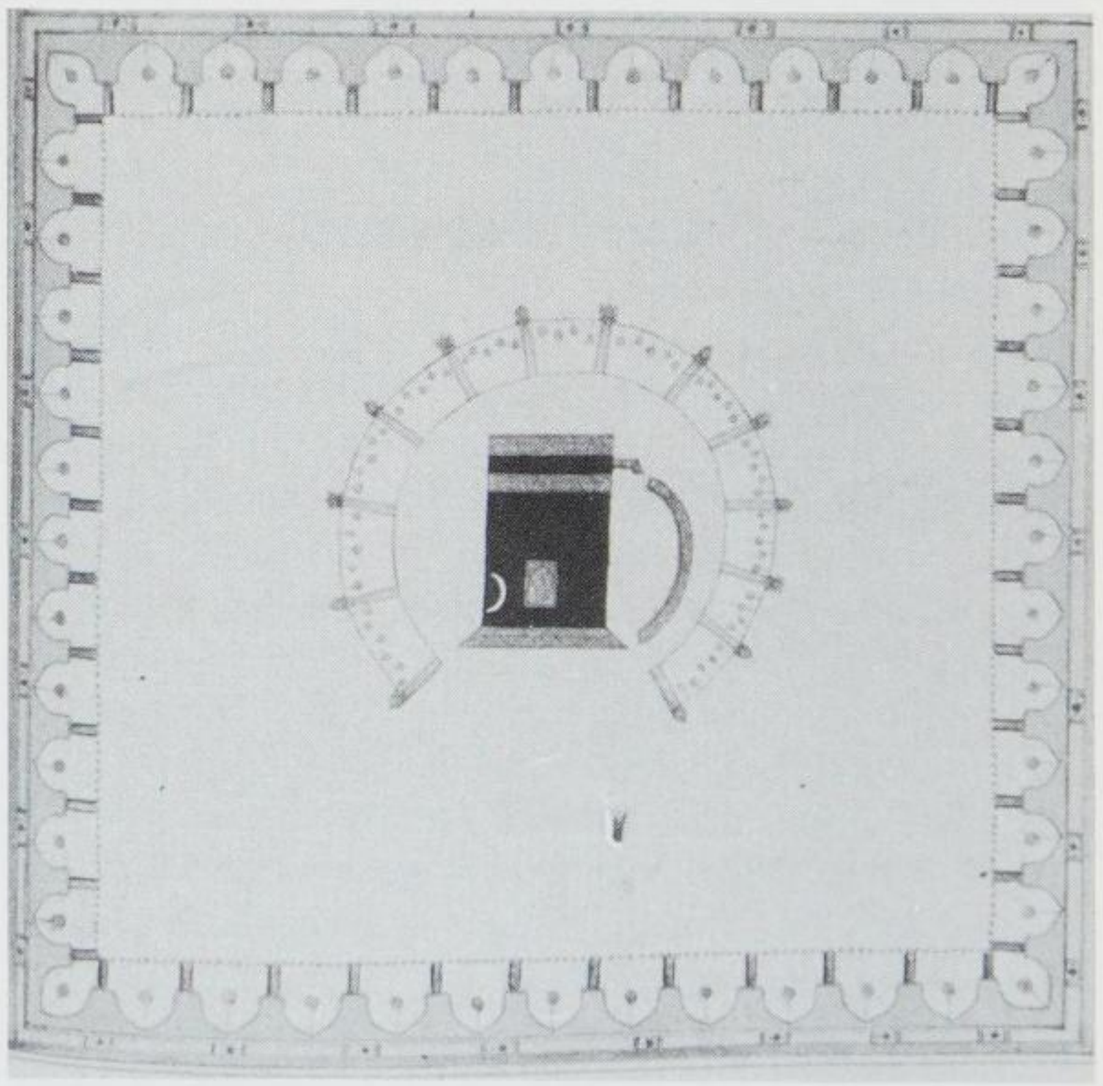
The map of Surat, with its geometrical straight lines, is in some ways a simplified version of the Surat map in the Jaipur collection [87]. It is unlikely that the idea to depict the town in this way was original to Safi bin Vali, but at present no other illustrated manuscript from India is known to include such maps, and until more are found, it is not possible to guess how such drawings originated.



86.2. Mecca.



86A. Mecca from a Persian Ms of 1754.



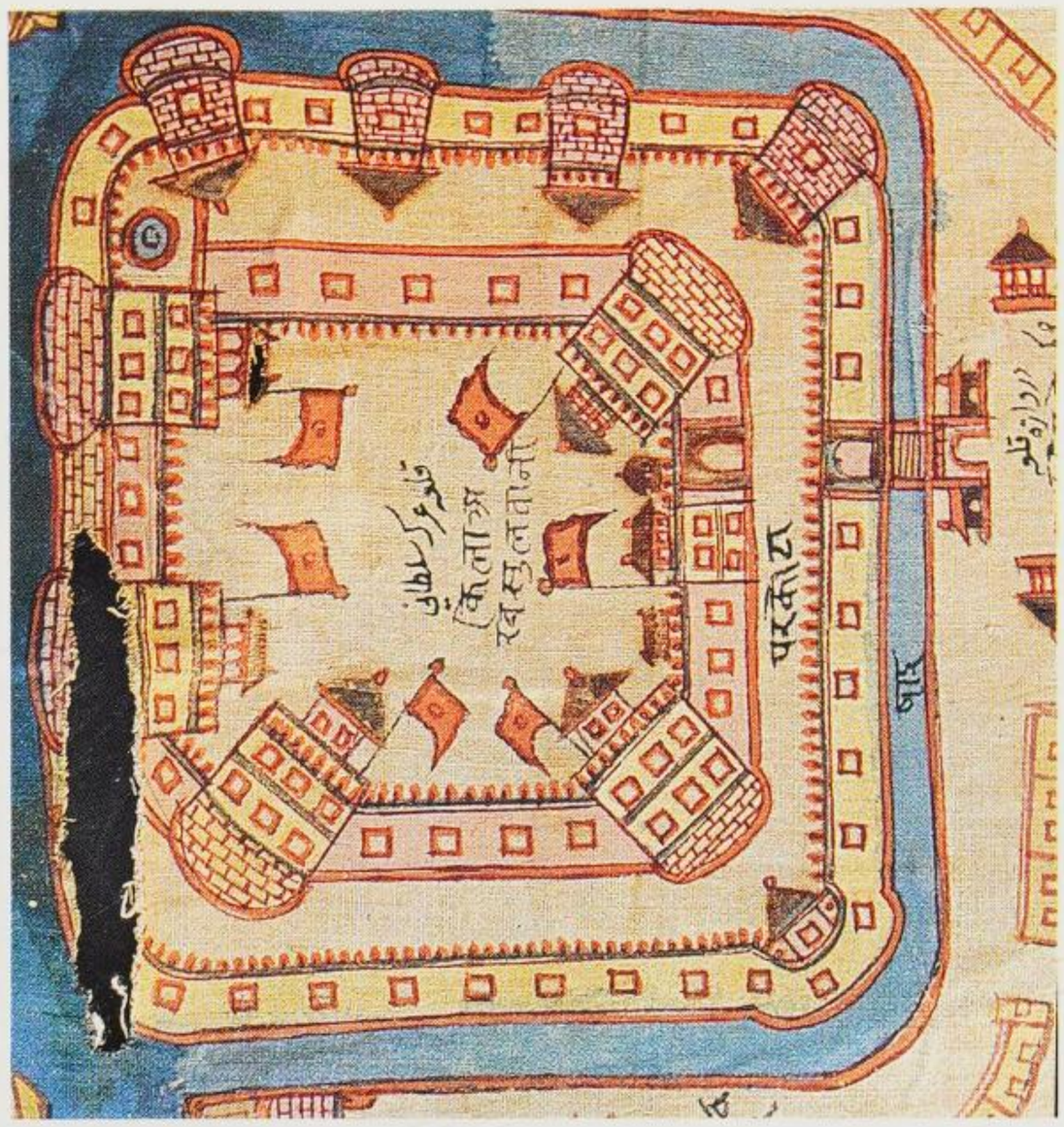
86.3. The Kibla.

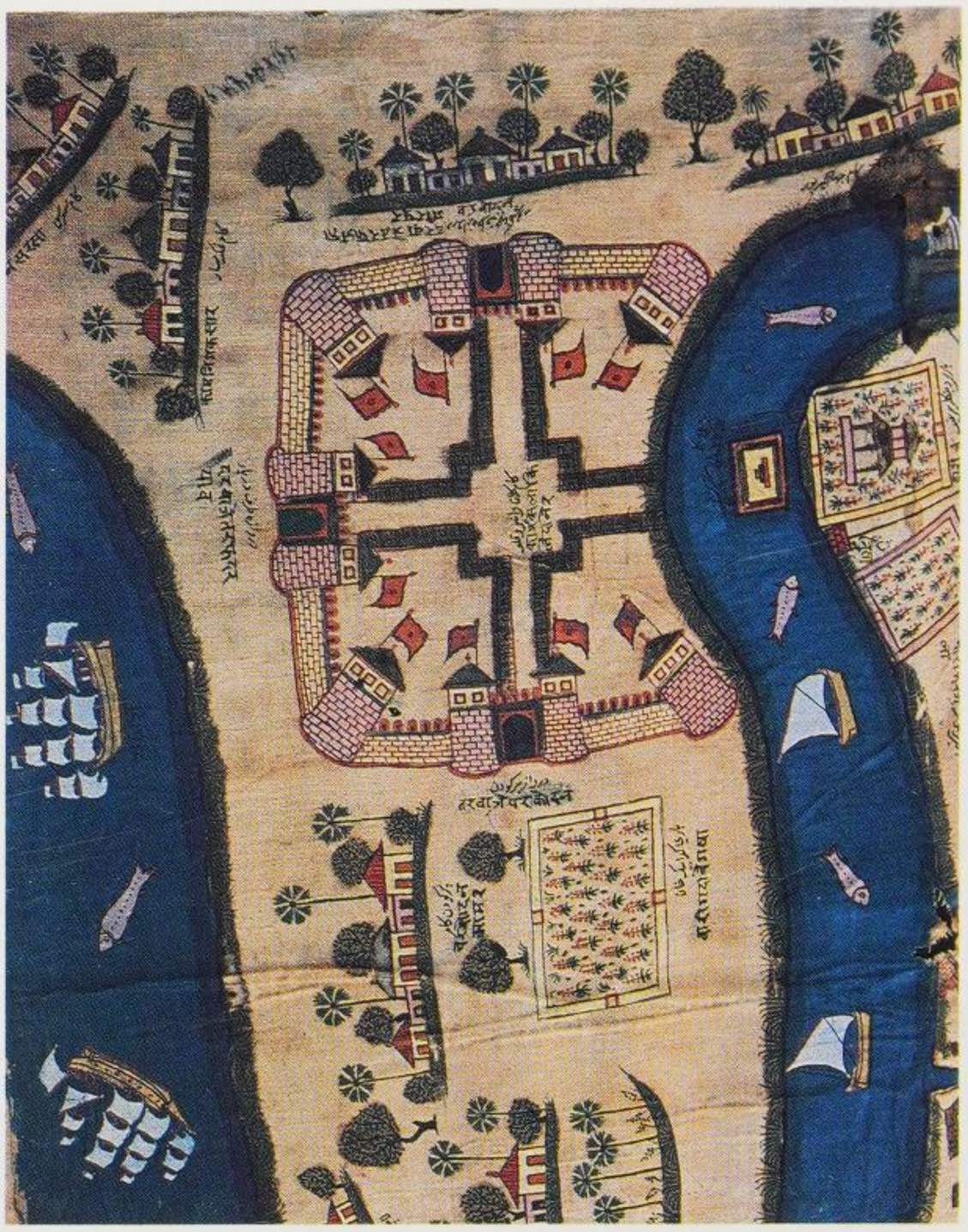
87

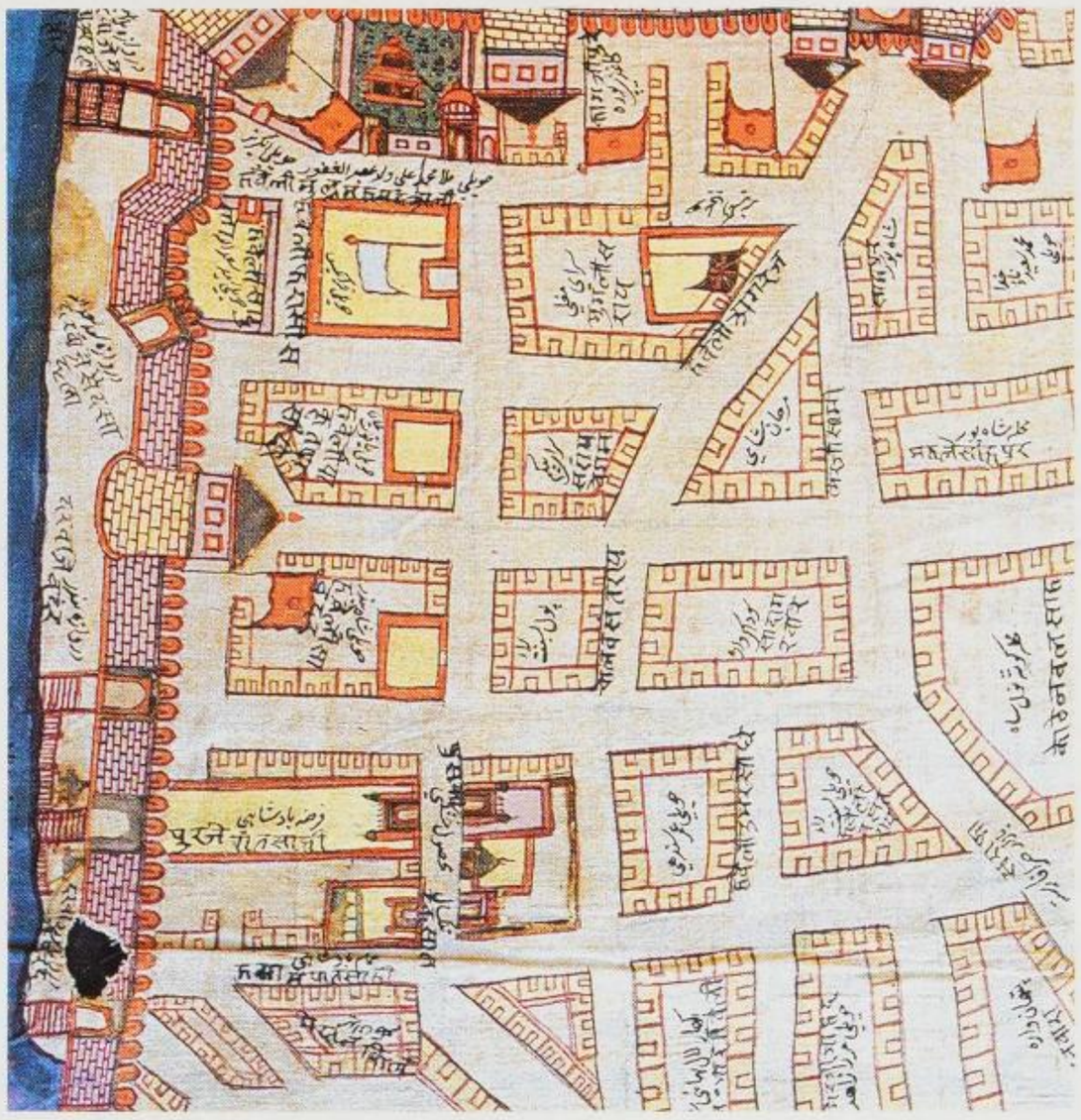
The text for this map of Surat is in Persian, written in a fine hand, but beside each name the Rajasthani translation has been added in a poor script. No date is known, but should not be difficult to establish, from the amount of detail and named buildings. The Union Jack is flying at the British factory, so the map must be later than 1694. On the long tongue of land to the left are the berths and warehouses for the foreign merchants. Each nation also had dwelling places and offices in the town, and these too are named and distinguished by their flags. The Dutch flag can be seen in the lower half of the inner town, while the French and English had their houses in the upper half. The fort is called Arab Sultan's Fort, and it is protected by a ditch and wall. Below it is the Customs House. The mint is above the fort, a little to the right. Houses of various nobles are also named.

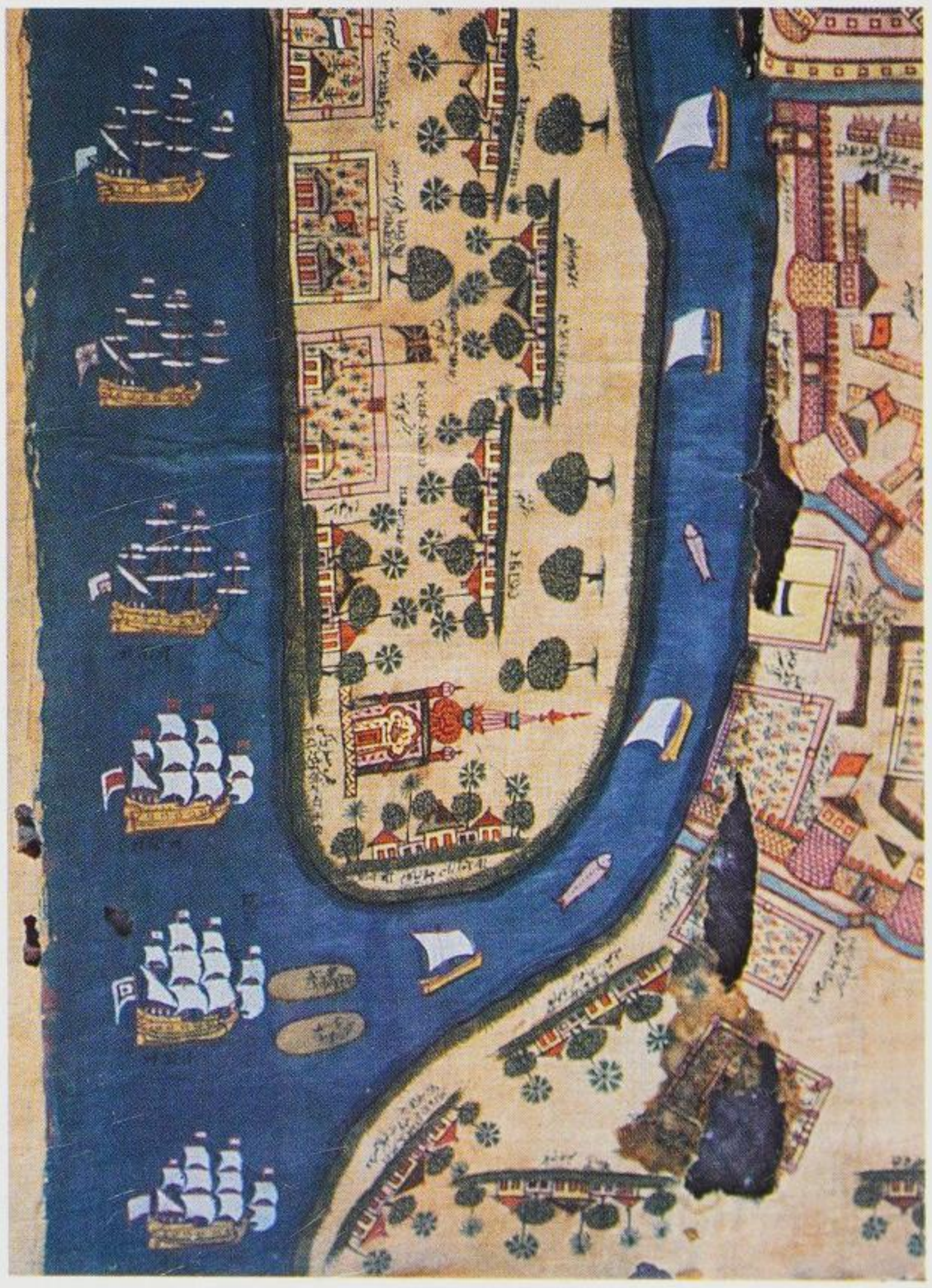
Between the two town walls a number of gardens are shown. Around the outside of the map the outlying villages are named, and conventionally drawn. No indication of their distance is given.

Details on the facing page:
Above left, 87a. The fort of Arab Sultan.
Below left, 87b. Part of the town. The Union Jack can be seen on the left of the diagonal road.
Above right, 87c. Site for a proposed new fort.
Below right, 87d. Berths for the French, the Dutch, and the English.







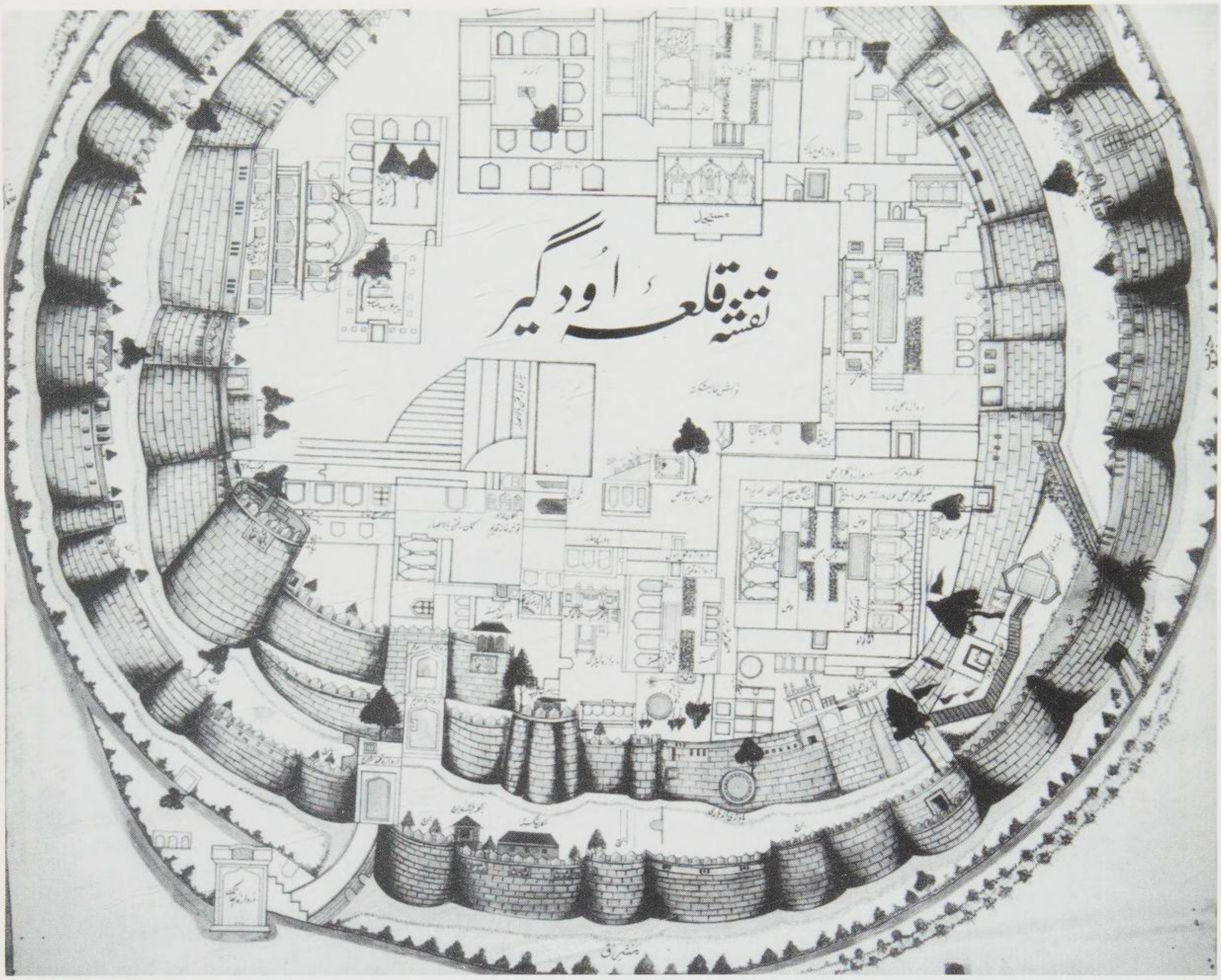


87

Title	[Surat]
Size	186 x 210 cm
Language	Rajasthani
Script	Urdu and Devnagri
Material	Cloth
Location	Jaipur: City Palace Museum
Cat. no.	118
Bibliography	Chandramani Singh in *Facets of Indian Art,* p. 190–91

88
Title [Jammu]
Size 198 x 121 cm
Language —
Script —
Material Cloth
Location New Delhi: National Museum
Cat. no. 58.33/4
Bibliography —

88
This very finely drawn map of Jammu town is undated, but is probably from the first half of the 19th century, when it was in the hands of Ranjit Singh. The palace on its high bluff above the river Tawi looks much the same today. The map may be from a later period, after European survey methods had been acquired. A search among the buildings that are so clearly depicted would probably reveal the earliest date it could have been drawn.



89

The writing on this map is to be read from a single direction, with West at the top. However, on the right side South is written, and if that is correct the cartographer must have confused his east and west, so the map is actually oriented towards the East.

No date is known, but it is probably quite late, since many of the interior buildings have been shown in ruins, and so named, for example, the large Rang Mahal with its dome, on the left, and a caption reading 'three storeys, in ruins'. Similarly the Roshan Mahal in a big square courtyard at the lower right is also in ruins.

In the centre of the map are the stairs leading up to the government guest house (also in ruins). The walls have been finely drawn, and each gate is named. So too are the wells within and between the walls. Even the kitchens, storehouses, stables and 'design department' have been depicted and named.

It is possible that this map is a copy, but if so, the wherabouts of the original is not known.

89

Title	Udgir
Size	Diameter 67 cm
Language	Persian
Script	Persian
Material	Paper
Location	Hyderabad: Andhra Pradesh State Archives
Cat. no.	—
Bibliography	—

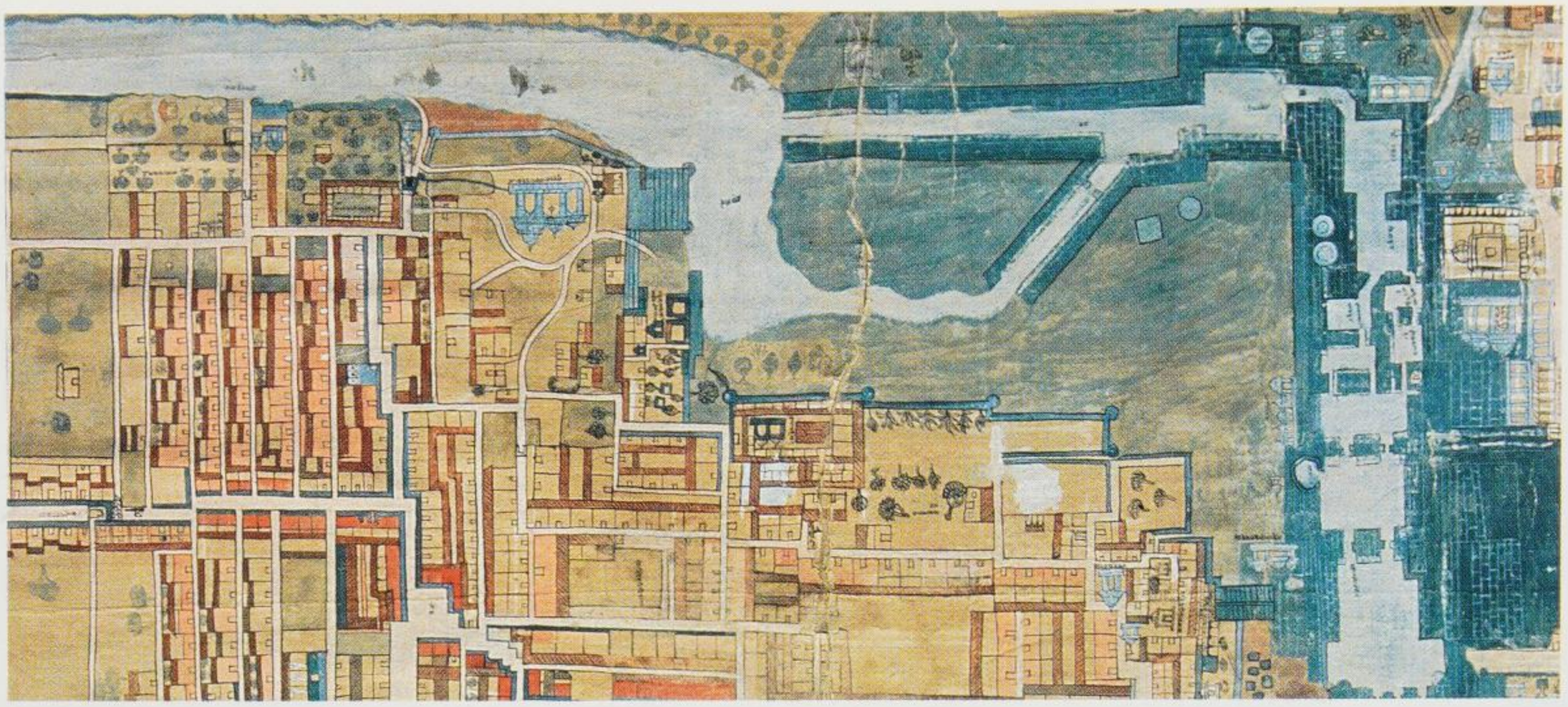
90

From the names that have been mentioned in this map of Nasik, it was not drawn before the third quarter of the 18th century, and possibly even later. With the rise of Maratha power the town was made one of the capitals under the Peshwas, and enlarged. It always remained, however, a religious centre, and this is reflected in the map with its emphasis on temples and ghats alongside the river Godavari.

At the upper left next to the river is the Naoroshankar Ghat, and at bottom left is Naoroshankar Wada. Naoroshankar was a governor of the city in the 1760s. On the upper right, the Varuna river flows down to join the Godavari. Just below its juncture is the Hingne Bagh, with the Ganesh temple to the right of it.

Down the left side of the river, are the Ram Kund and Sita Kund, then the Dhashesvarad Tirth. Across the river here is the Holkar dharamshala, the guest house built by the Holkars of Indore for their citizens coming here on pilgrimage. Continuing down the left side is the Lakshman Shankar temple, Paranjpe's Tarakeshwar Mahadev temple and the Peshwe's courtyard. Before the river turns to the right are the Manikarna, Dareka and Mukteswar ghats.

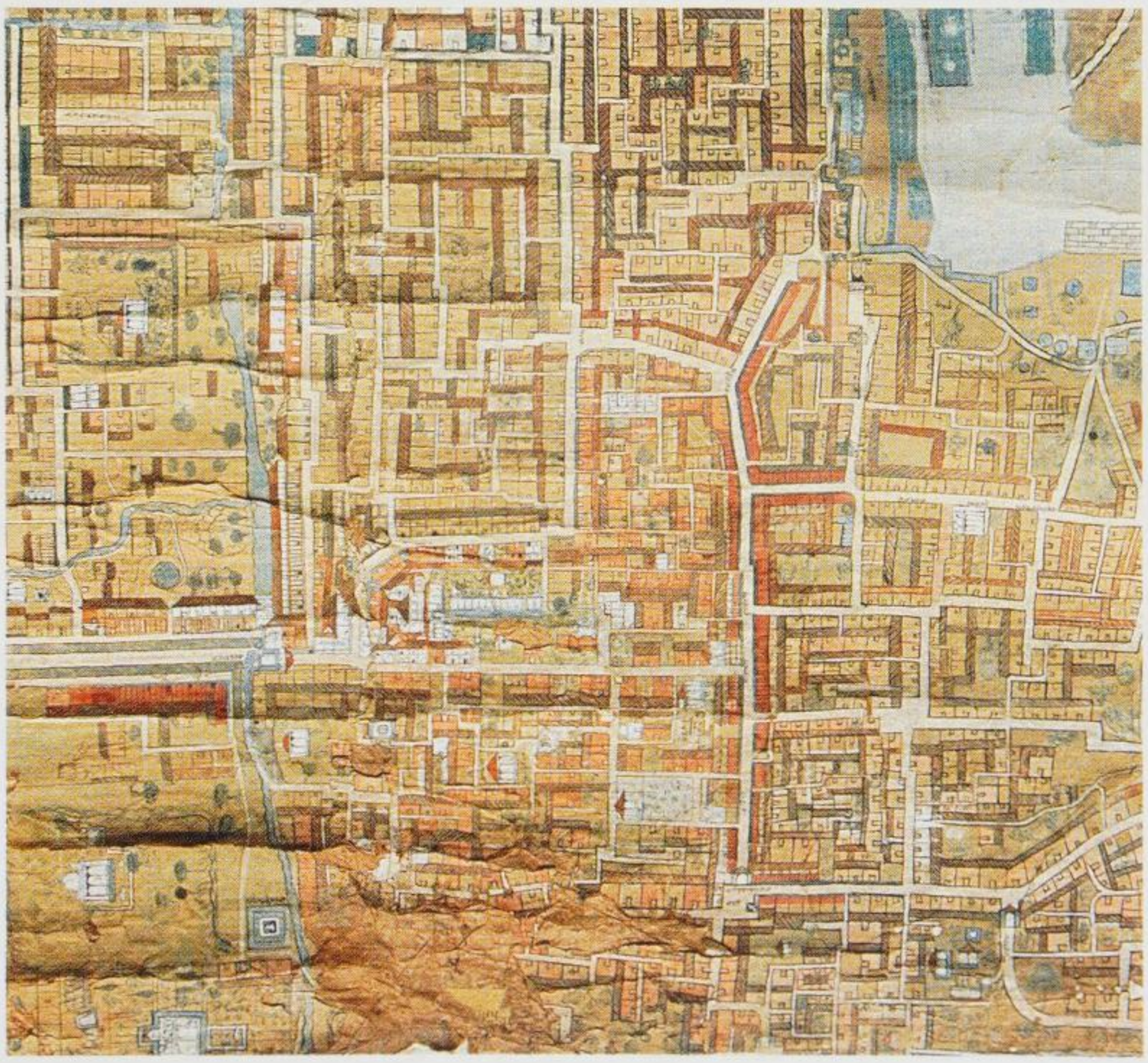
There is certainly enough information and detail on this map for it to be correctly dated by someone who knows the town well.

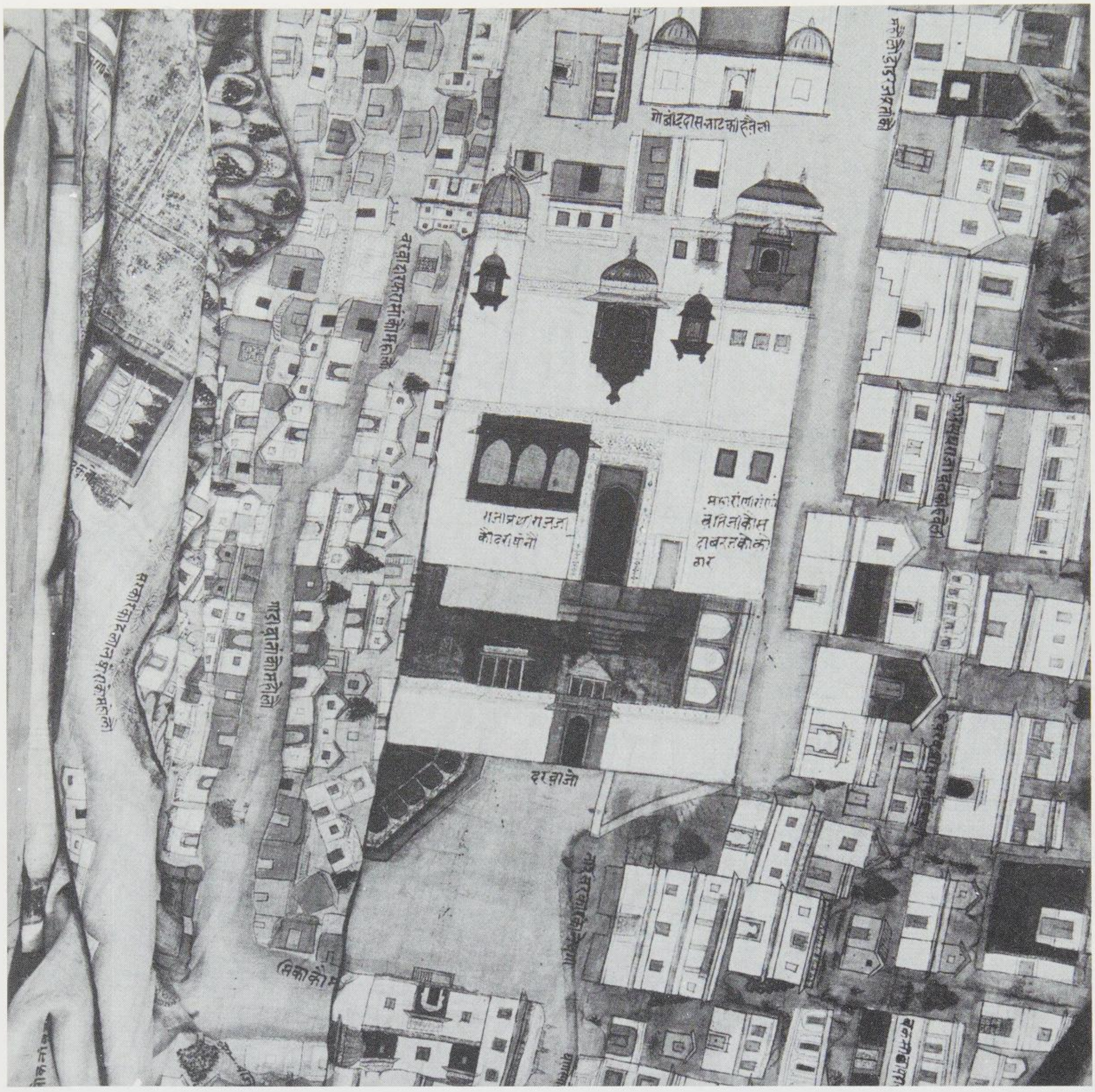


90a. Naoroshankar Ghat and Ramkund.

90	
Title	[Nasik]
Size	300 x 315 cm
Language	Marathi
Script	Devnagri
Material	Paper on cloth
Location	Pune: Peshwe Daftar
Cat. no.	—
Bibliography	—

90b. Streets in the newer part of town.





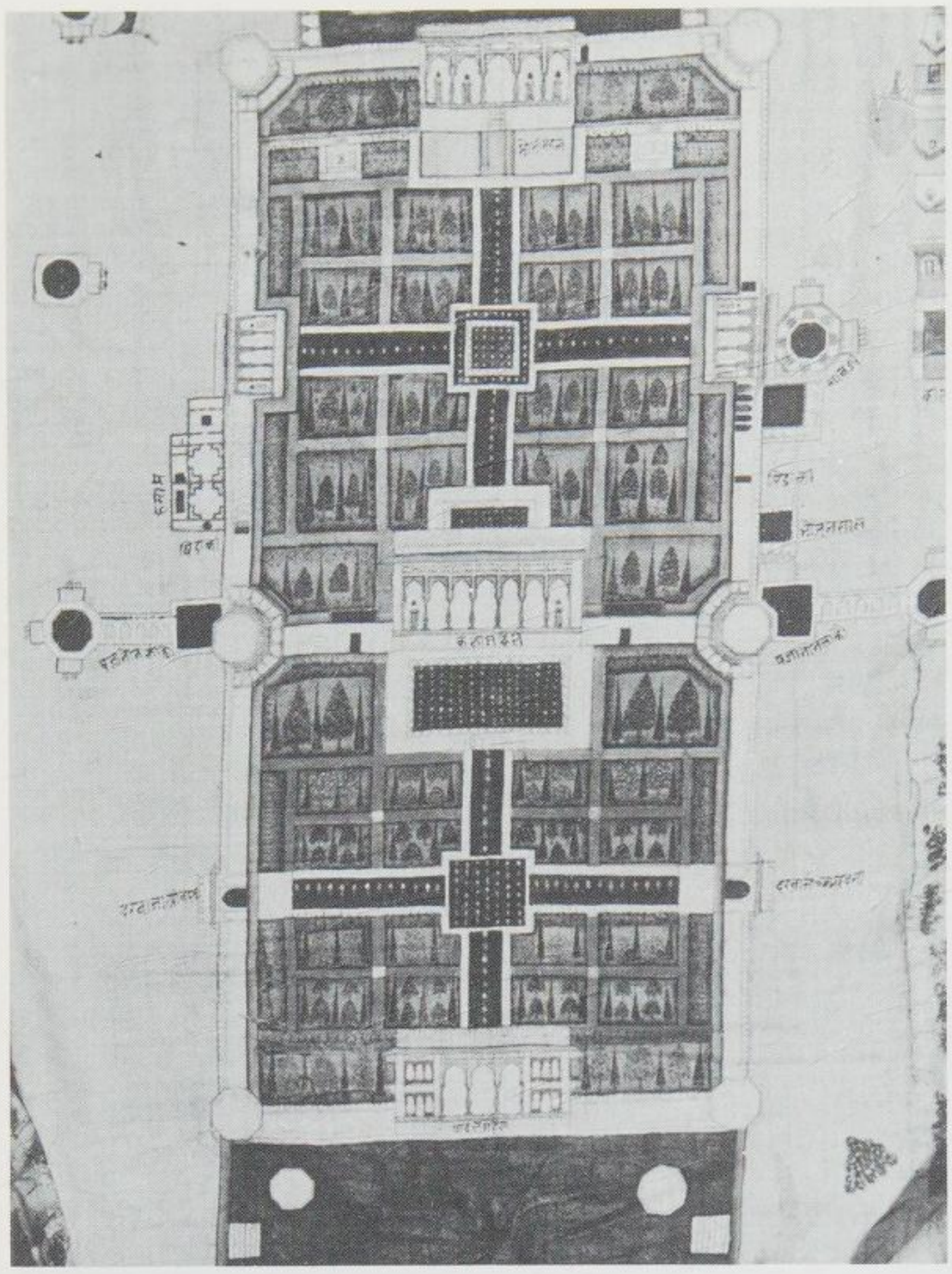
91a. Part of the palace complex.

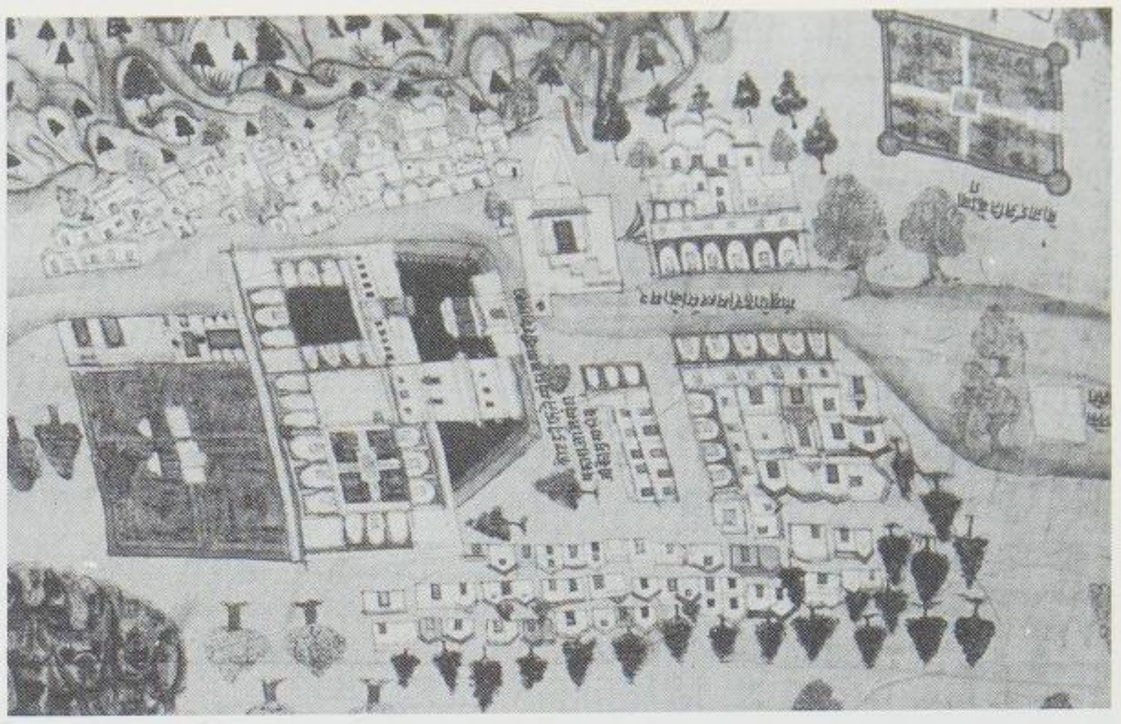
91

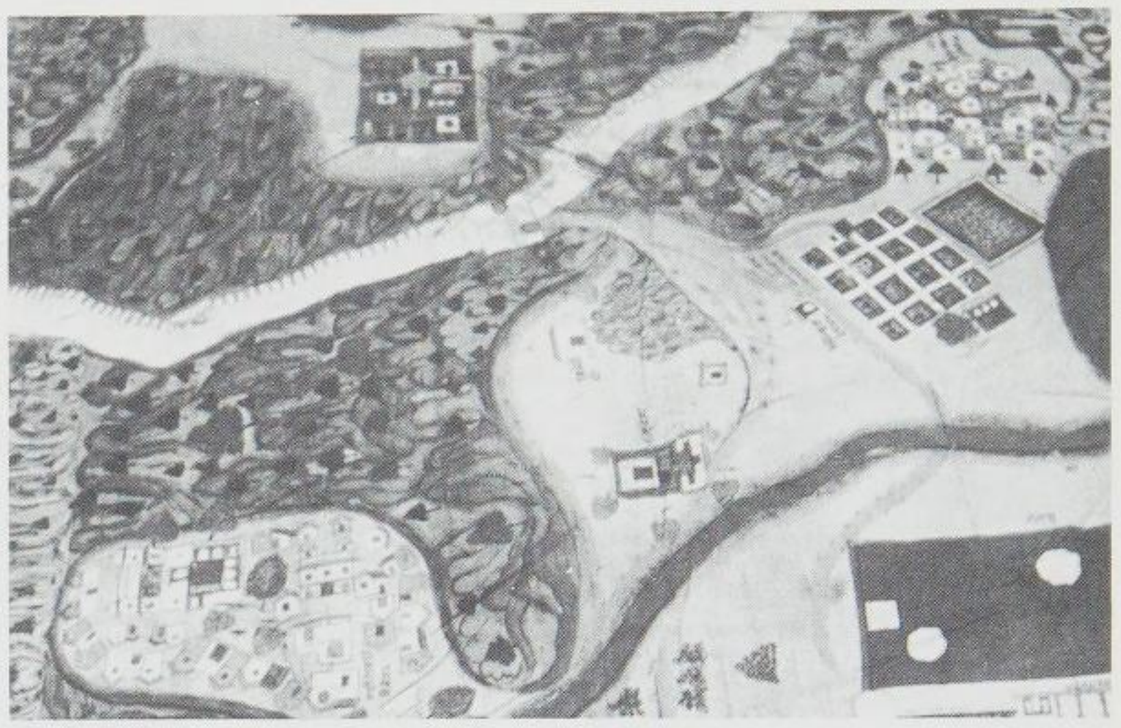
This is one of the largest maps that has been seen. It could not be studied closely as it is in poor condition, and has now gone for restoration. No photograph of the full map was available.

It shows the town of Amber, the former capital of Jaipur State, in great detail. Every house on every street is drawn, and named according to the occupation of the inhabitants, such as the street of the dancing girls, that of the barbers, and so on. Pandit Bahura of Jaipur has dated it to 1711. The new capital of Jaipur was built and occupied by 1727, so this map must have been made well before the town of

91	
Title	[Amber]
Size	645 x 661 cm
Language	Rajasthani
Script	Devnagri
Material	Cloth
Location	New Delhi: National Museum
Cat. no.	56.92.4
Bibliography	—







91b. The huge courtyard of Amber, with its well laid-out gardens and various types of plants.

91c (above). A nearby village with gardens.
91d (below). A village nestling in a valley.

Amber was abandoned.

It is on a very large scale, and covers much of the outlying hills, with every spur and valley clearly shown. The long wall of the town winds its way up hill and dale, all drawn with great delicacy.

The elaborate gardens can be seen, with different kinds of shrubs. The palace at Amber still has similar pictures on the walls today, as well as panels of inlaid stone work. Though the buildings are sometimes drawn conventionally, and are a mixture of plan and elevation, the map must have been the result of an extensive survey of the areas it covered, and is thus a remarkable record of the period.

92

The Bhojanshala at Amber was the private dining room of the ruler. It is a small room, hardly four metres by two, on the first floor of the palace, with a door from the inner courtyard verandah in the middle of one wall, and opposite it a door leading to a verandah overlooking the outer courtyard. At one end a small stair leads up from the lower floor, and at the other a door leads into another small room.

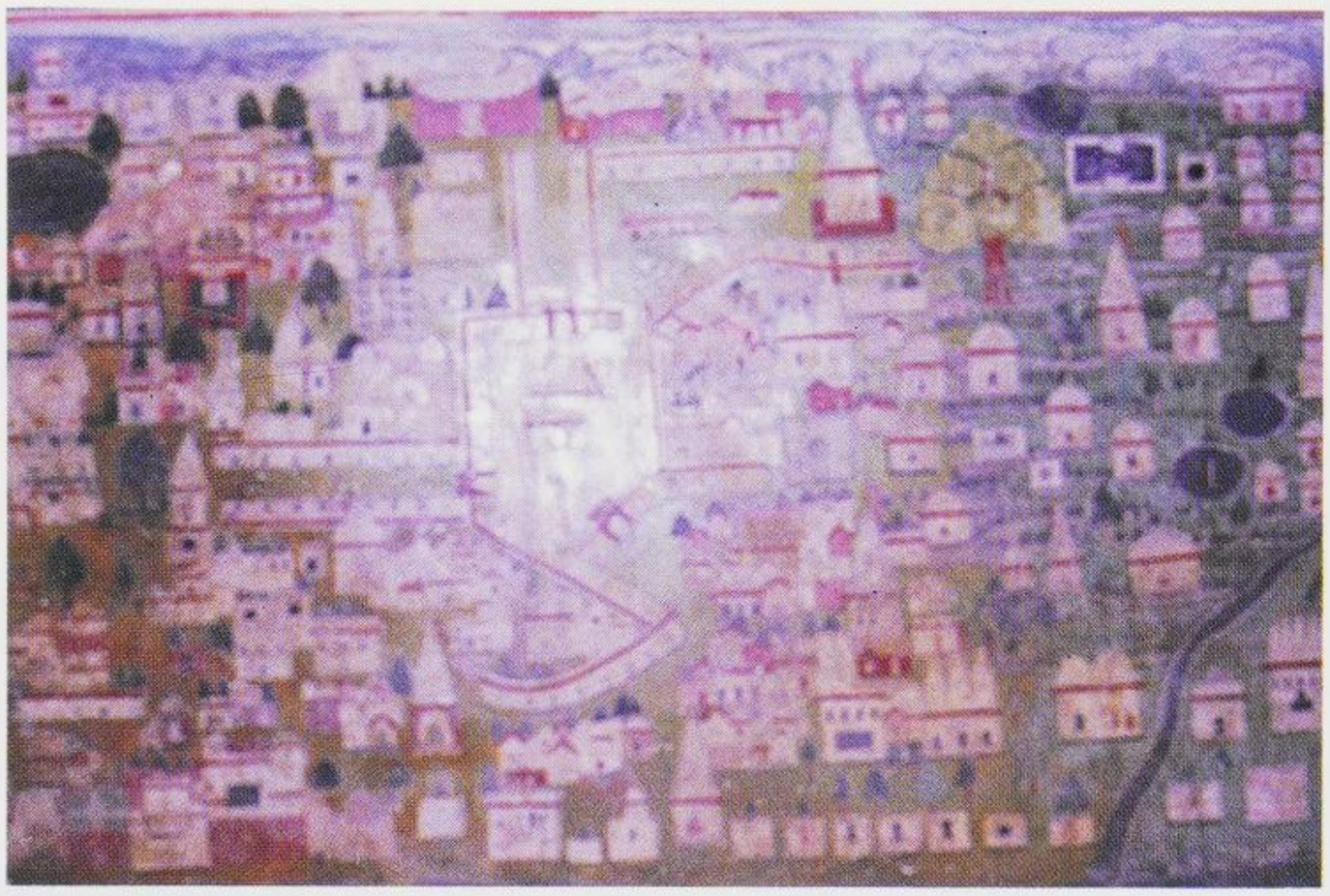
Around the walls from a height of about one metre to the top, about two and a half metres high, are pictures of religious cities, a favoured subject for decoration of the dining-room.

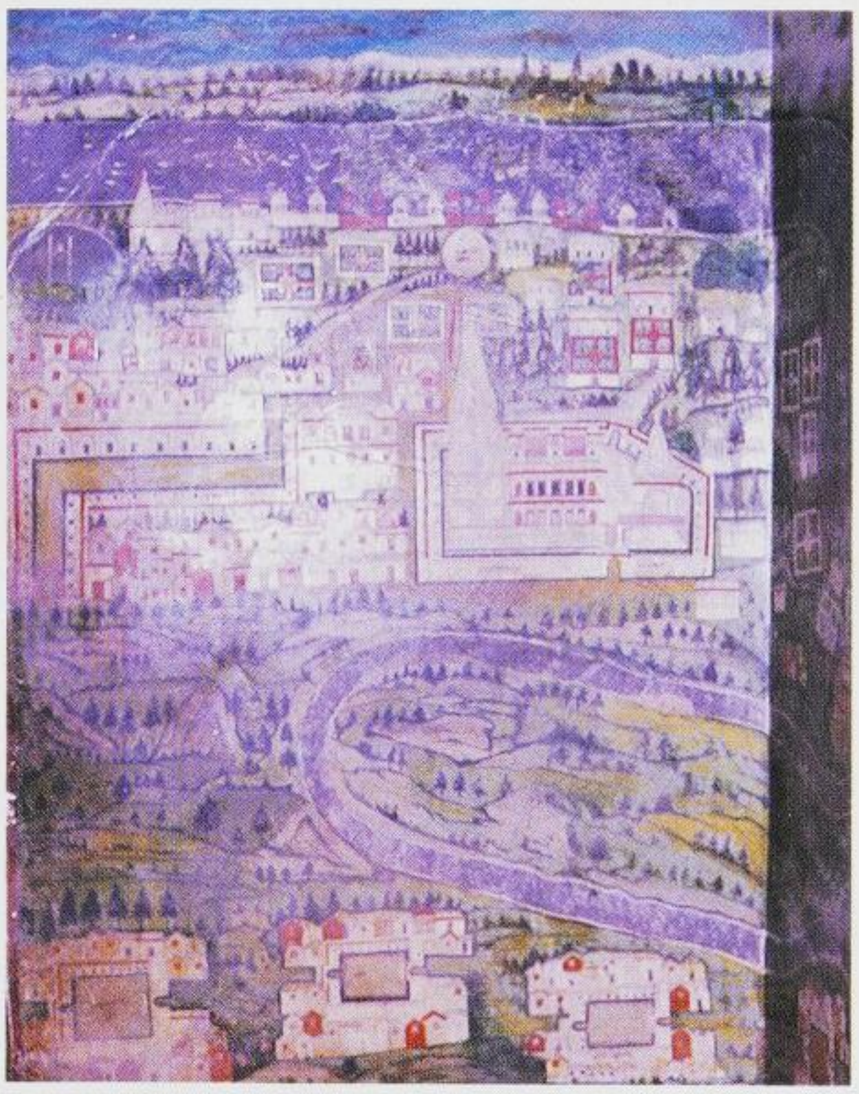
When the doors are closed very little light penetrates, and thus the paintings are in good condition. Unfortunately it was not possible to identify the towns, as the script is not very clear, and though many small buildings are named, no picture has a general title. The sites would have been well known and require no further identification to the diners.

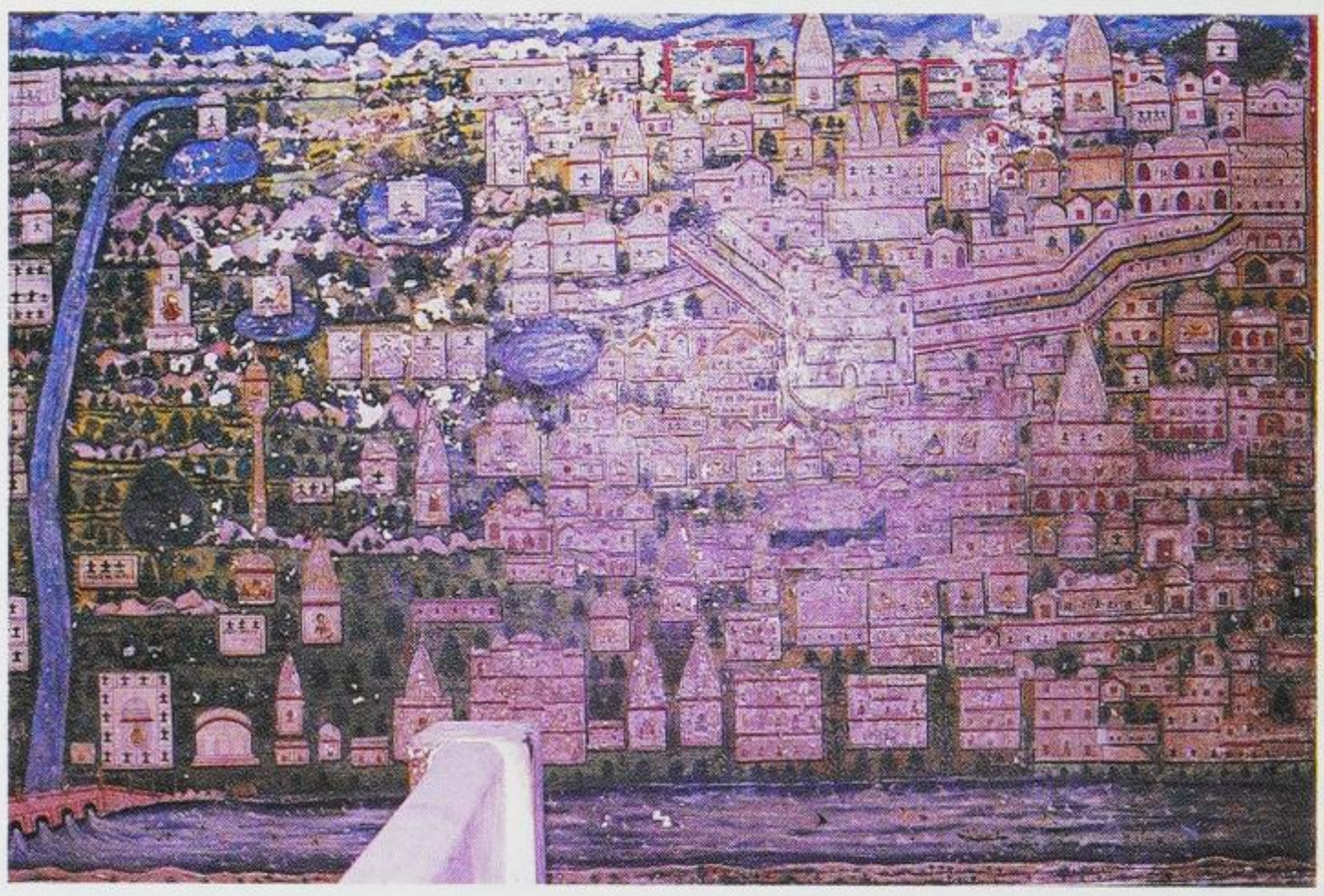
Since the town was abandoned when the new capital of Jaipur was built in 1727, the paintings must have been done well before that date.

92

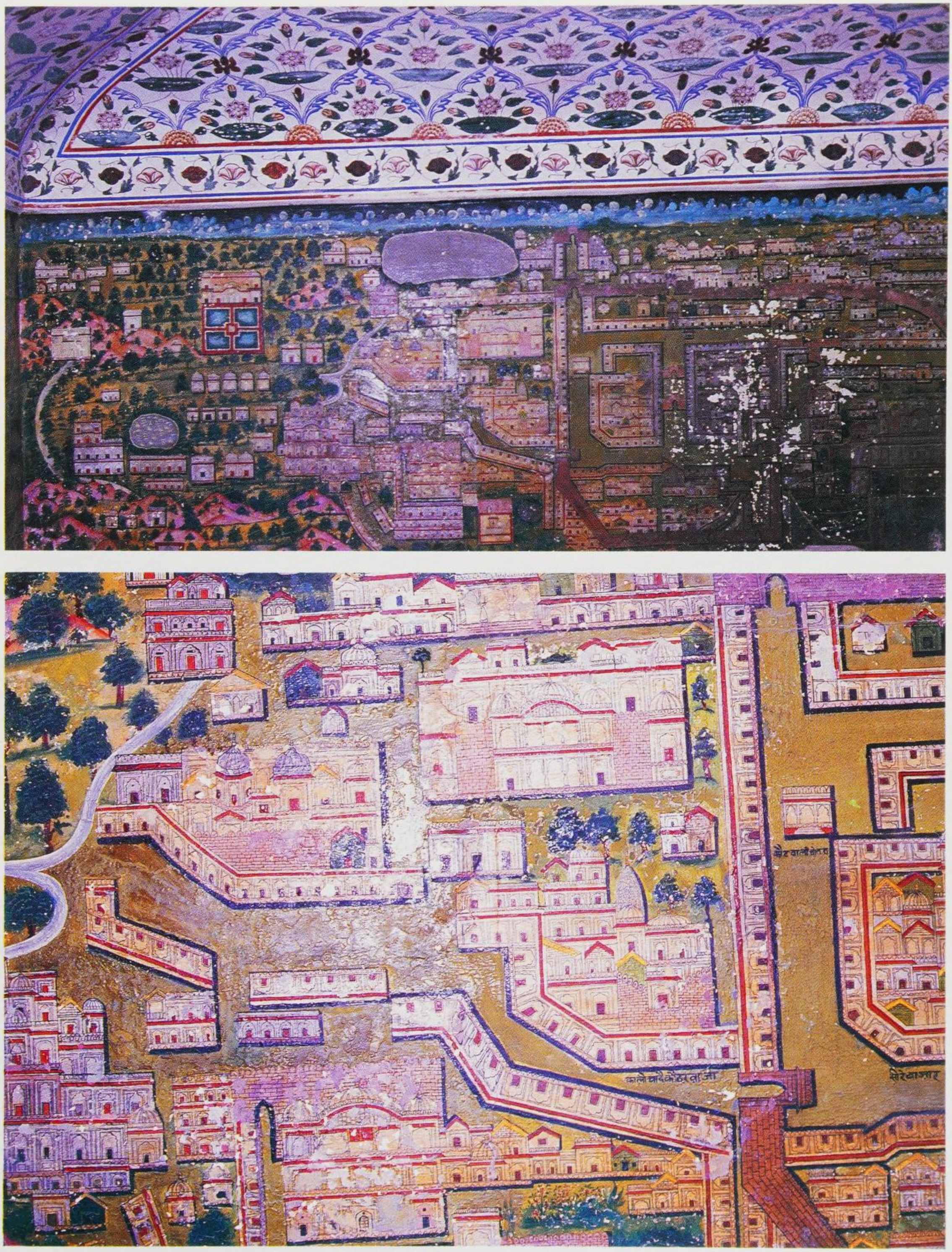
Title	[Maps on Bhojanshala walls, Amber]
Size	About 1.5 m high, various widths
Language	Rajasthani
Script	Devnagri
Material	On plastered wall
Location	Amber palace, near Jaipur
Cat. no.	—
Bibliography	—



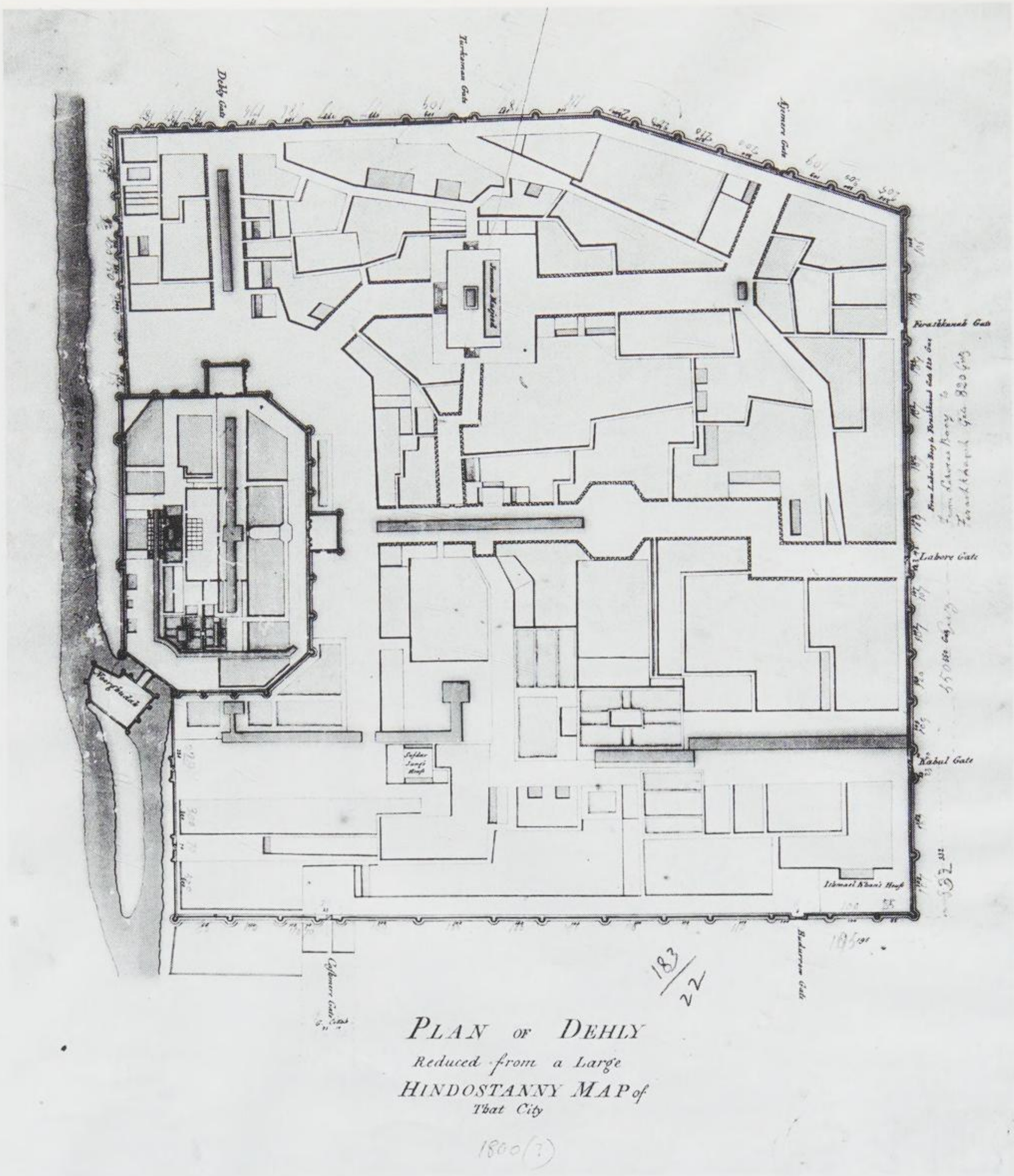




92.1–92.5. Paintings on the walls of the Bhojanshala at Amber. The towns could not be identified.



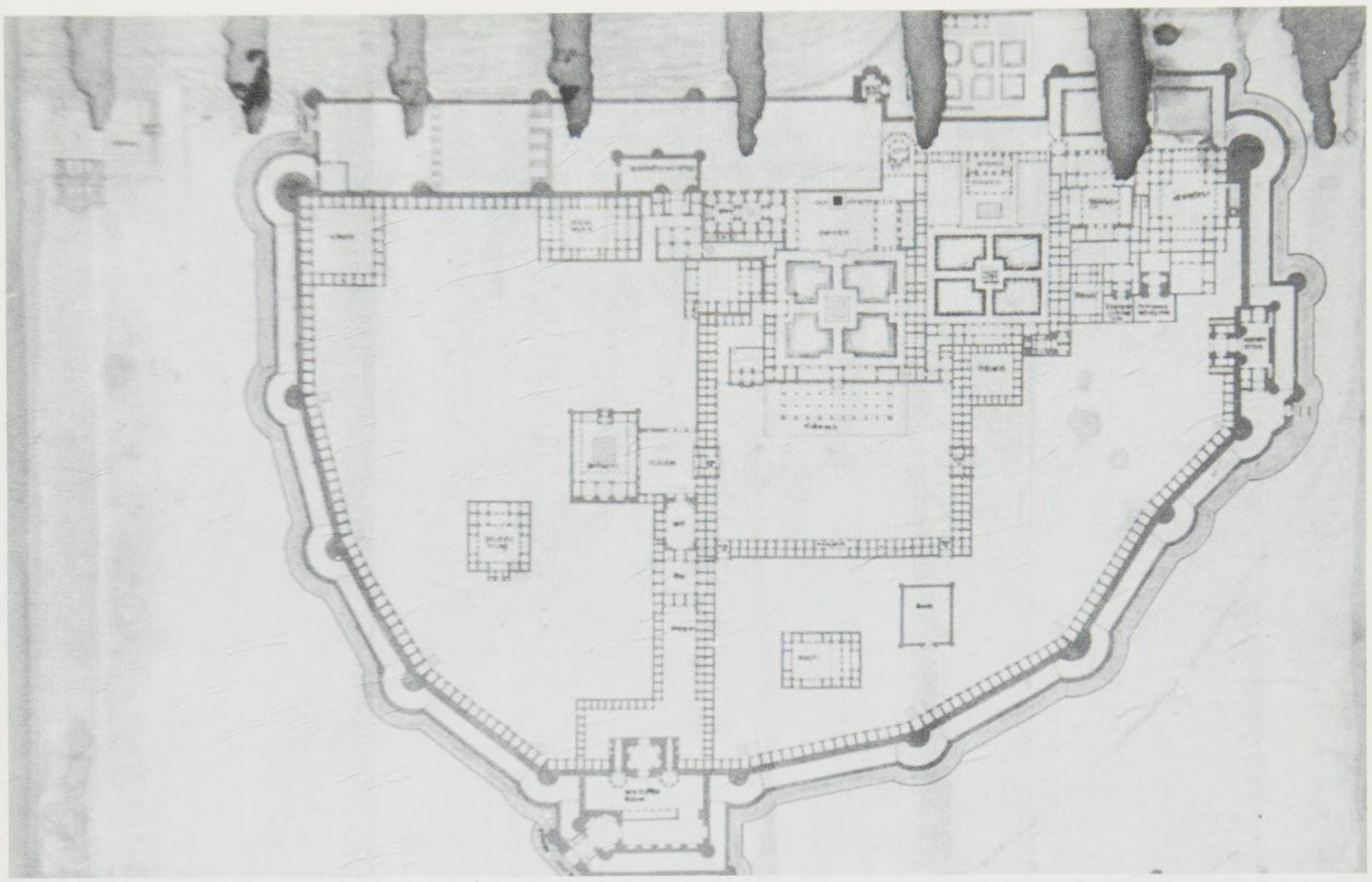
92.6 and 92.6a. A wall at Amber Bhojanshala, with part of the ceiling which is painted with flower motifs.



93
Title Dehly
Size c.35 x 35 cm
Language Originally Hindustani
Script English translation
Material Paper
Location New Delhi: National Archives
Cat. no. F.183/22
Bibliography —

93

No original to this map is known, nor any record of when this copy was made. The putative date of 1800 that has been added is a guess. So few names are given that it is hard to date it. The shapes of the blocks appear to have been carefully drawn, and this should enable an approximate date to be given. Safdarjang, whose house is named, was wazir under Ahmed Shah in the 1750s and later Nawab of Oudh. Gentil, a Frenchman who served under Safdarjang's successor in Oudh, recorded that Safdarjang bought at a modest price the palace of Dara Shikoh in the reign of Ahmed Shah (*Mèmoir*, p. 379). But this palace, one of the most famous of Delhi, was outside the walls, beside the river. Perhaps this map dates



94
Title [Agra fort]
Size 121 x 83 cm
Language Hindi
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 125
Bibliography —

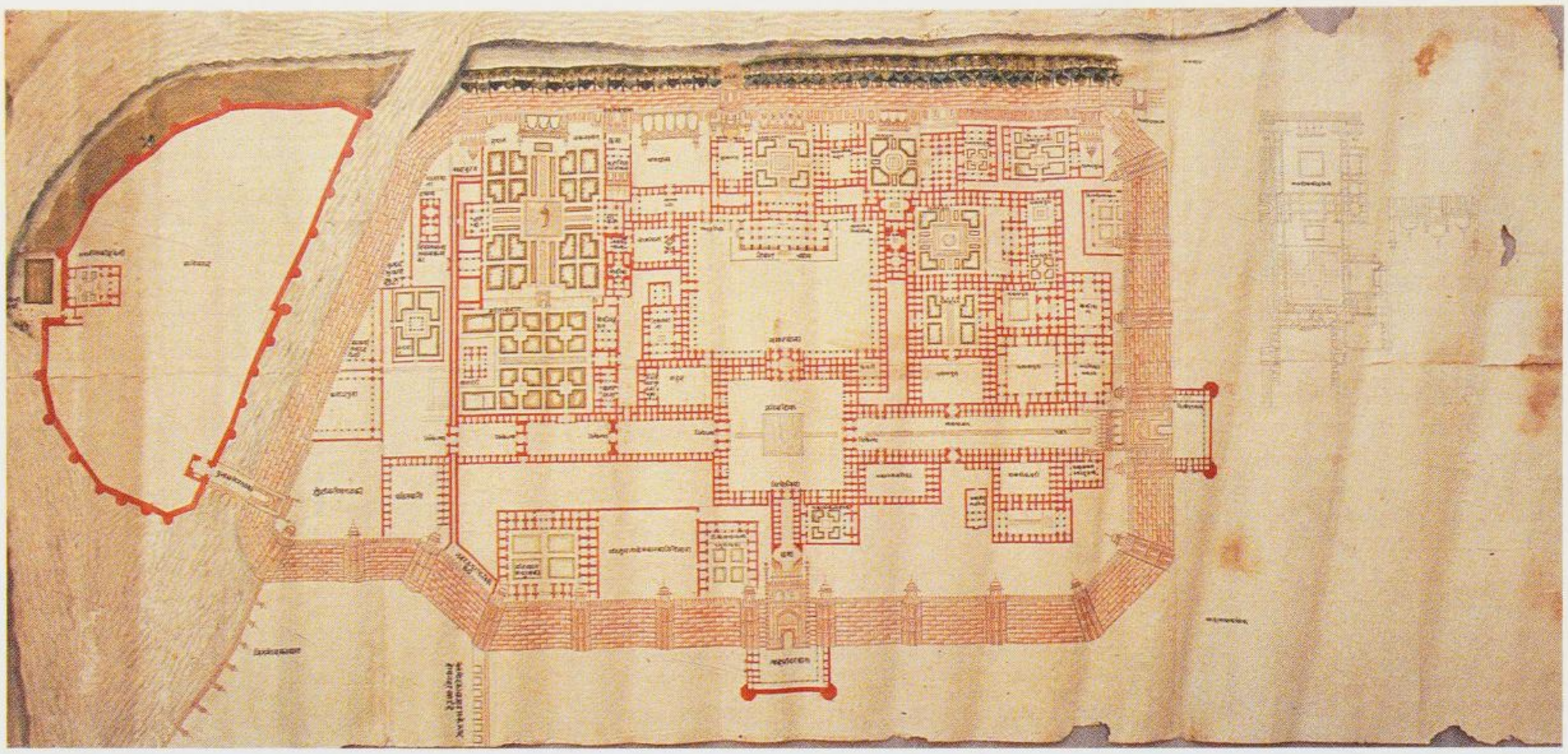
from just before the purchase, when Safdarjang still had a town house. Or it may have been later, when Safdarjang had already gone to Oudh, but retained a house at the capital.

The shape given to the city of Shah Jahan is more square than it actually is, which has resulted in some compression to fit all the streets into the given shape. Emphasis is on the defences, and the distance between each bastion has been shown in yards, with additional details on the side of the Lahore Gate. Unfortunately, without the original, one cannot know how much the copyist omitted, or added.

94
Preserved in the Jaipur palace are two very neat plans of the forts at Agra and Delhi. They are on paper, on which a rough grid has been drawn in pencil. The buildings are in red, gardens in green, and text in black. They appear very modern, but date probably from the middle of the 18th century. The writing in both is all to be read with east at the top of the page, but no directions have been given.

In the Agra fort plan, the main gate is at the bottom. The entrance is through a covered way, with the house of Dhan Shah on the left, and leads to the Moti Masjid. On the right of the covered way is the court house. From the mosque square a gate leads to the diwan-i-am, the public audience hall. Beyond is the diwan-i-kas, for more select audiences. Along the outer wall on the left are the baths, then the house of Nikoser, the jhalkhana in the corner, and outside, the Jumna garden with a pavilion.

On the right of the central hall is the tower room where Shah Jahan sat during his imprisonment, gazing at the tomb of his wife, the Taj Mahal. In the upper right corner are the older parts of the fort, called the Jahangiri Mahal, and, in the corner, the Akbari Mahal. The Amar Singh Gate at the left is the one in use today.



95
Title [Delhi fort]
Size 137 x 64 cm
Language Rajasthani
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 122
Bibliography —

95

It is from this plan of the Red Fort at Delhi that these two fort maps can be more easily dated. In the centre of the plan, to the left of the smaller square which is named the Jalebi Chowk, is the house of Nawab Bahadur. This was the title given to Javed Khan, a eunuch, formerly steward of the harem, who became the favourite of the empress Qudsia Begum, and rose to power during the reign of her son Ahmed Shah. He was murdered at the home of Safdarjang in 1752. An unpopular man, it is unlikely that his house would have retained his name for long after his death.

The large number of names on this plan give a very detailed account of the buildings inside the fort. To the left is the Salim Garh fort, divided from the fort by a branch of the Jumna. The two main entrances were through the Lahore gate at the bottom, and the Delhi Gate at the left. This was so called because it led to the ruins of previous cities on the site, all called Delhi, whereas the new capital was called after its founder, Shah Jahan.

The pencilled drawing on the right is of Ghazdi Khan's house. Why it should have been singled out in such detail is not known. In the corner between the two gates were the quarters of the eunuchs who looked after the harem, and of the musicians. To the right of the Jalebi Chowk was the house of the commander of the fort. The house of the Mir Jumla (army commander) was to the left of the covered way, and beyond it was that of the Mir Atish (commander of artillery). Outside the wall at this point is a note that here the water of the canal is carried on the roof of a covered Nigam Bodh, and next to the river is the Nigam Bodh ghat.

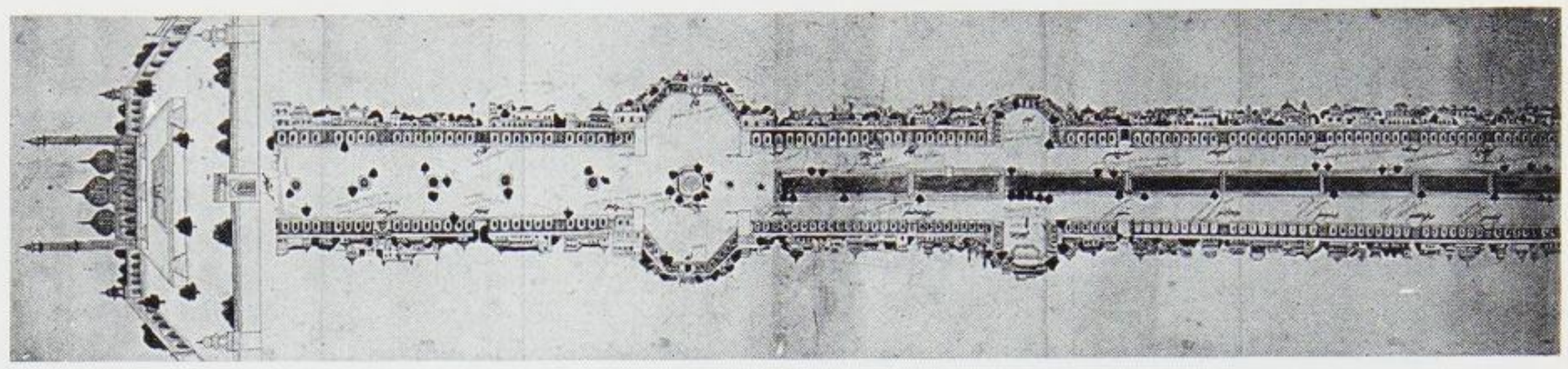
The names of all the better known buildings are also given. Such a plan would have been most useful to the European visitors who were lucky enough to be invited within the fort and have left such detailed descriptions over a long period, but it is unlikely that they knew of its existence.

96

This detailed map of the city of Shahjahanabad has been published several times, but no complete translation of it is known. From its precision and style, and at a time when no non-European maps were known, it was assumed that it was made by a foreigner. Since the recovery of the Jaipur collection of maps, and so many others, it now seems possible that it was not the work of a European after all.

Since it has not been fully translated, no date has been given to it, except that it is certainly before 1858, when so much of Delhi was destroyed by the British. It shows the house of Begum Samru in a garden to the north of Chandni Chowk, which was built after the British took control of the city in 1803. Its manufacture could probably be pinpointed more closely, if all the inscriptions were read. It seems that they were added after the drawing had been done, and were not part of the original plan.

96	
Title	[Shahjahanabad]
Size	104 x 114 cm
Language	Persian
Script	Persian
Material	Paper
Location	London: India Office Records
Cat. no.	X/1659
Bibliography	—



97.1

97
Title [Fort and streets of Shahjahanabad]
Size .1: 31 x 140 cm; .2: 31 x 135 cm
.3: 75 x 82 cm
Language Persian, with some French added
Script Persian
Material Paper
Location London: Victoria & Albert Musuem
Cat. nos .1: AL 1762; .2: AL 1763;
.3: AL 1754
Bibliography Gole in *South Asian Studies*, 1988, pp. 13–27

97

A study of the names in these three maps has led first to their identification, and then to an approximate date for their production. The two long maps show the main roads of Shahjahanabad, with, on either side, the names of the nobles whose residences lined the streets. The third is of the fort, but only the part that might be viewed from outside the walls.

At the end of Chandni Chowk [97.1], the road leading from the fort towards the Lahore Gate, is the Fathpuri mosque. Along the north side the following names are given, from the mosque towards the fort: Katra neel, the locality of the indigo dyers; in the octagonal place, the Bagh-i-Begum, queen's garden; Kucha-i-patua, the locality of the embroiderers in gold thread; Chabutra of the Johar Bazar, police post for the jewellery bazar; Kucha-i-gila, not identified; Tripolia, triple gateway; Darwaza-i-Bagh Baradari, gate to the serai; Kucha-i-Jeevandas, Jeevandas' street; Kucha Lal Behara, not identified; Samukardh, possibly the house of a money-lender; Kucha-i-haveli Taj Mohammad, the street and house of Taj Mohammad.

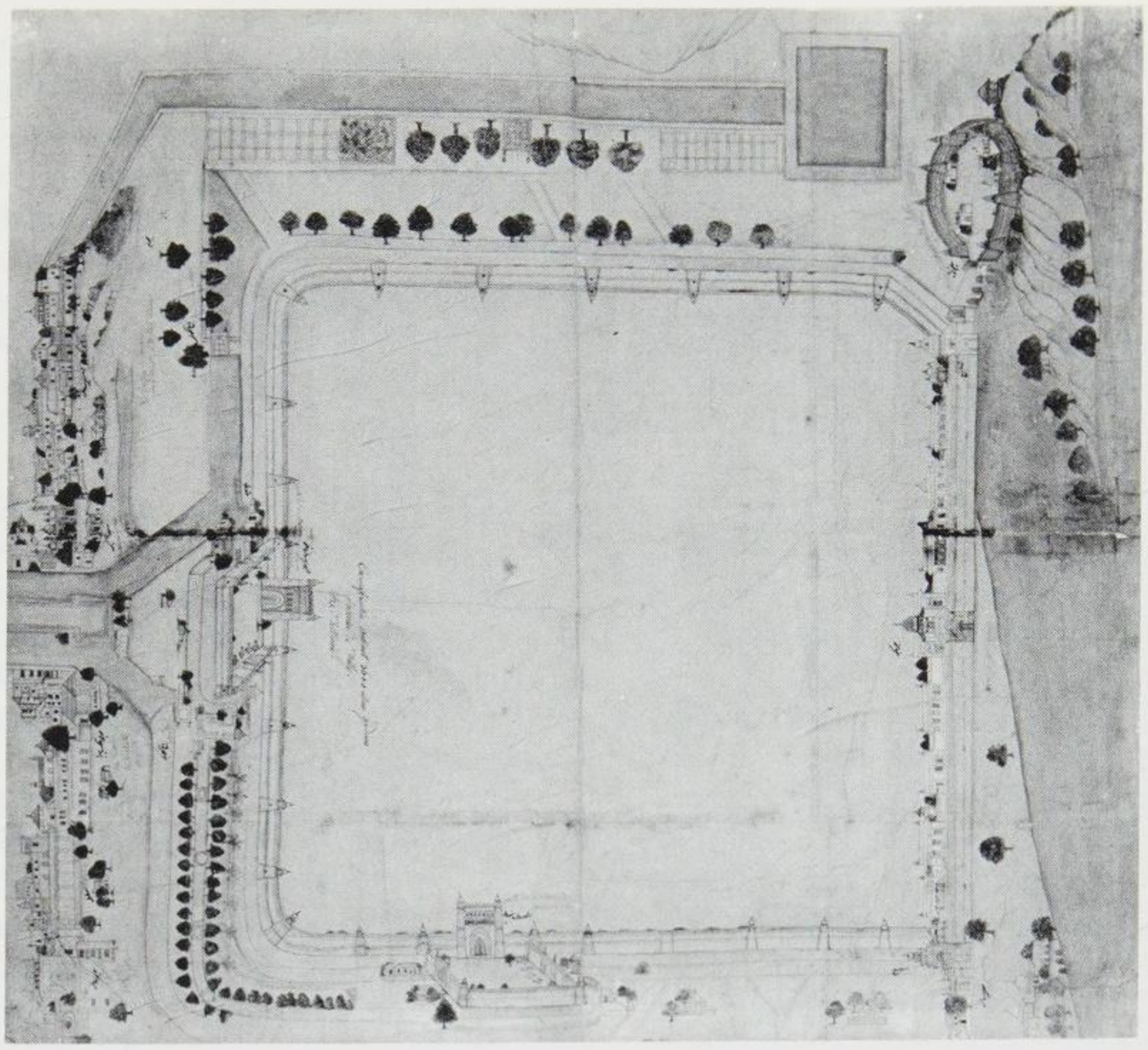
On the south side of Chandni Chowk, again from the mosque end, are: Haveli Haider Kuli Khan; Kucha-i-choori wala, the banglemakers' street; Kucha-i-Rehman; Hamam, the baths, beyond the gate in the octagonal place; Kucha-i-maliwara, perhaps the gardeners quarters; Kucha-i-haveli Rajah Jugal Kishor; Chabutra Kotwali, the police headquarters; Kucha-i-dariba, the silversmiths' street; Kucha-i-pani-pana sahoucar, perhaps the street of the imperial money-lenders; Raja Gobind Rai; Kucha-i-Choudhury Hukumdas; Kucha-i-Bulaqi Begum.

On the left side of the second street, the Faiz Bazar [97.3], nearest to the fort is the small mosque built by Nawab Bahadur, and then the large Akbarabadi mosque. Next came the Katra Sudha Karan, not identified; Haveli Nawab Samsam-ud-daulah; Kucha Faulad Khan; the mosque of Nawab Roshan-ud-daulah; Rasta Chitli Qabr, a street opening on to the central square; Takia Shah Bhik, a memorial to a celebrated saint beside the canal; Makan Fazil Marti Fakir, not identified; Takshala Badshahi, the royal mint; Haveli Inayat Khan; Haveli Naubat Khan; Kucha-i-Itteran, the perfume-sellers' street; Haveli Moti Ram; the mosque of the Delhi gate; and the Delhi gate of the imperial city.

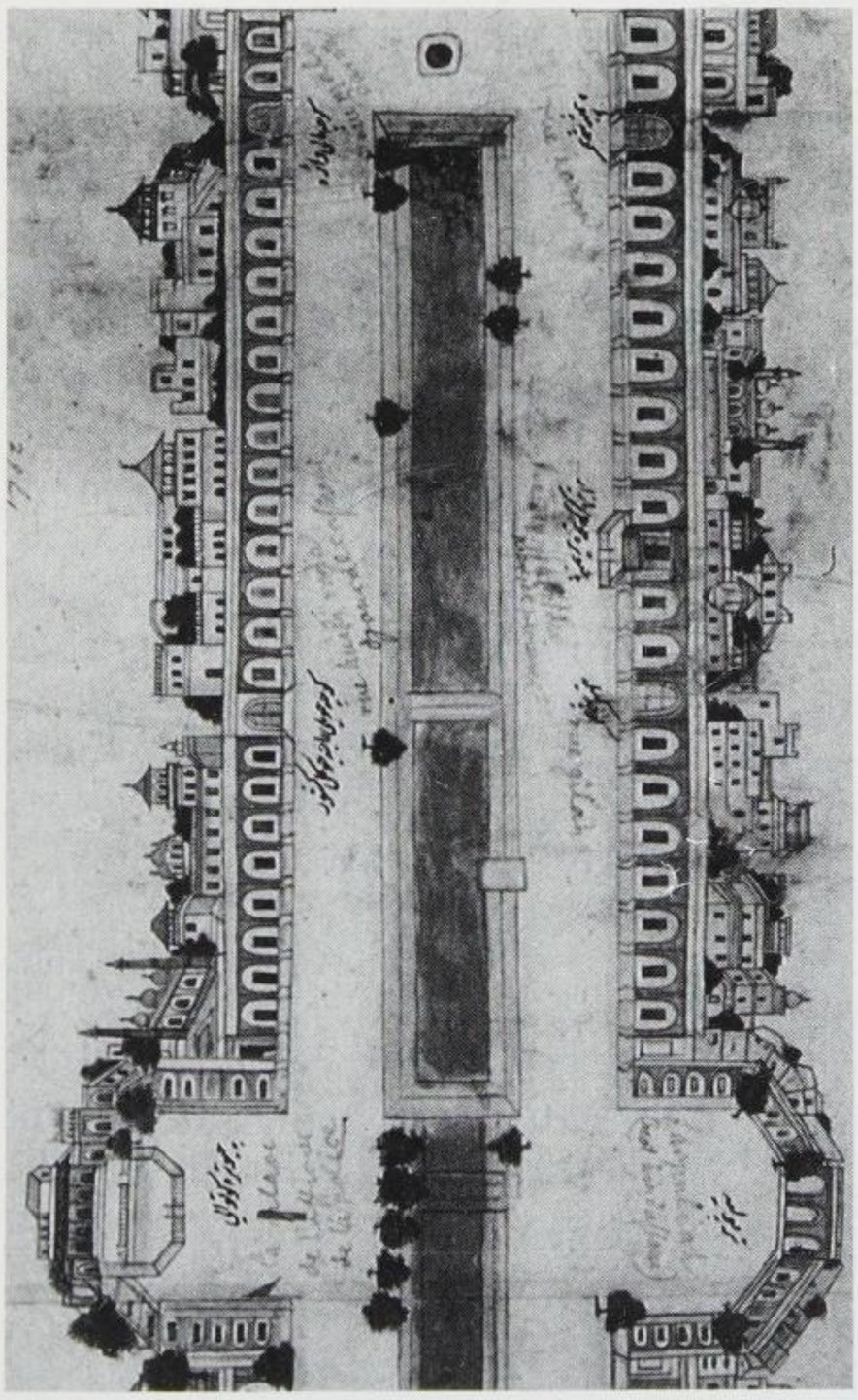
On the opposite side of Sa'ad-ullah Khan's square, outside the Delhi gate of the fort, were the baths built by Sa'ad-ullah Khan, and his own residence. Going down the street the following places are named: Kucha-i- maidagaran, the street of the flour merchants; Kucha-i-Sabha Chand; Charsimatola, not identified; Haveli Gyan Chand; Kasra Inayat Khan; Haveli and Kucha-i-Itiqad Khan.

On the left of the fort map [97.2], to the south of Chandni Chowk are Haveli Malik Sabira, the rose garden, and the royal stables. On the north are the mosque of Qazi Katire, Asad Khan's Baradari, and the vineyard. On the river side is Selim Garh, and views of the principal buildings within the fort.

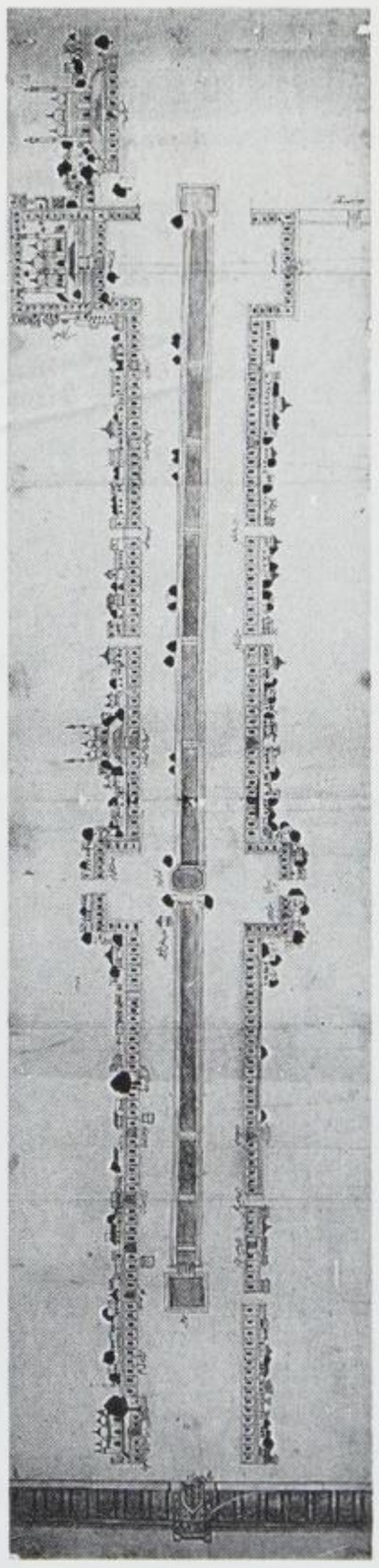
There are sufficient names on the maps to date them to the period just before the large-scale despoliation of the city in the late 1750s.



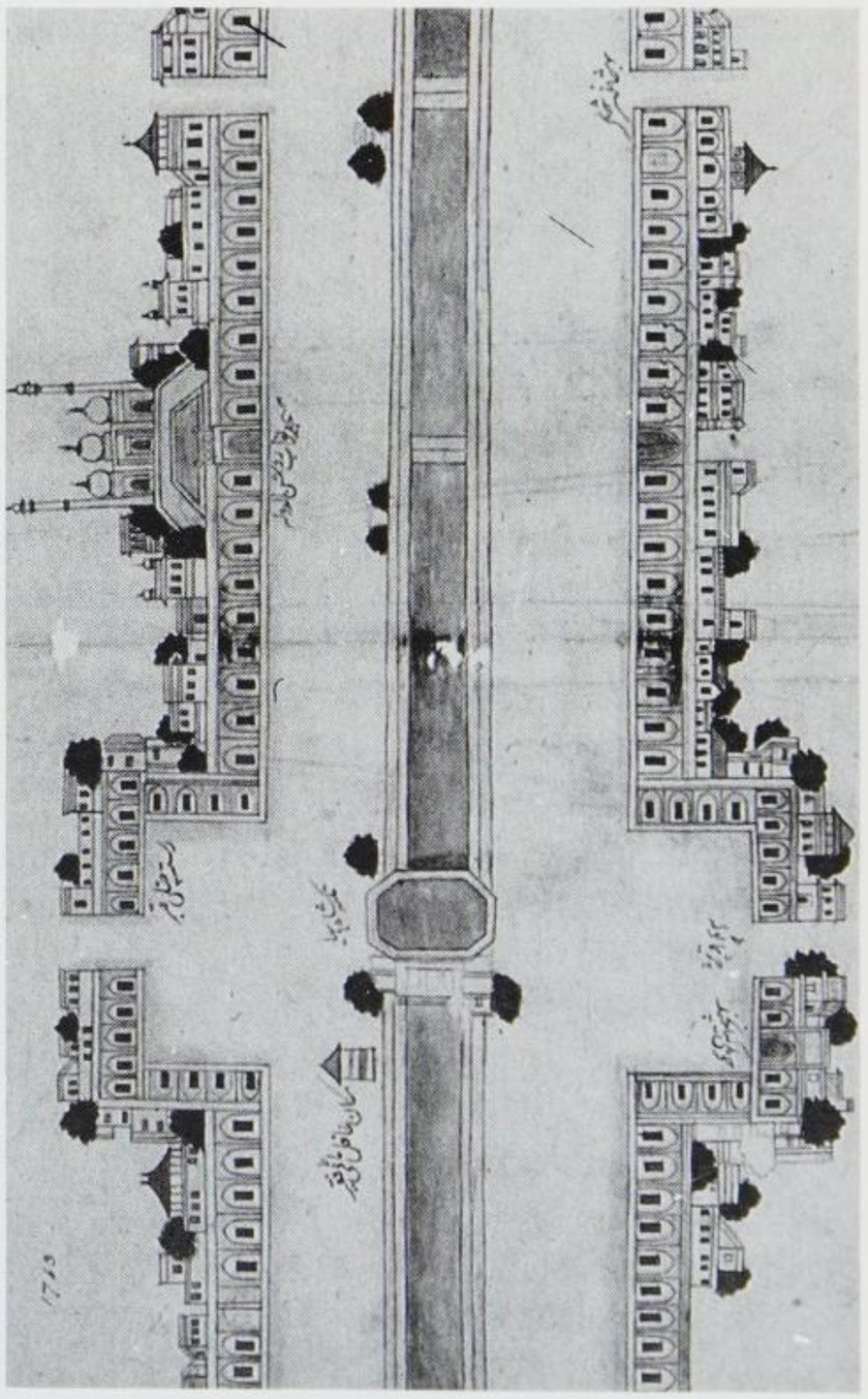
97.2



97.1a. Chandni Chowk, between the octagonal place at the top and Kotwali (police station) .



97.3



97.3a. The central part of Faiz Bazar, with the Roshan-ud-daula mosque on the left.

98	
Title	[Maratha maps of towns]
Size	Each approx. 30 x 28 cm
Language	Marathi
Script	Devnagri and Modi
Material	Paper
Location	London: India Office Library
Cat. nos	MSS Mar. G 28 c, d, e, f, g, h, j, and k
Bibliography	—

98

This set of eight rough plans appears to relate to the Maratha wars against the British in the early years of the 19th century. They are all similar in style, which might suggest that they were drawn later to illustrate the campaign, or that the same cartographer was present at each place, and preparing plans either before or after the engagement. No scale is given, and they vary widely. Some show a single town, others cover a large area. The inscriptions are in a mixture of Devnagri and Modi, with no set pattern for the use of either script. Four directions are given on each map, but the script is to be read from all sides. They are uncoloured, and do not appear to be finished works. (The rectangle on the corner of each is the mark left by the library label.)

98.1 Gwalior (west at top). The town of Gwalior is circled on the right, next to the oval shaped Gwalior hill-fort. Scindia's army encampment is in the bend of the Suvarnarekha river. In most parts of the stream there is a note that the water is permanent, but near the lower loop there is no water. At top right the river flows to join the Chambal. Within the encampment the government bungalow is in the centre, with a wide bazar leading up to it. Starting on the right, near the river, the following commanders are named: Sardar Kale, Raoji Trimbak, Trimbak Pant, Daulat Rao, Angre, Patanker (on the left halfway round the circle), Nimbalker, Hindurao, Wamanrao Apte, Ambwa Ghatga. The small circles around the other side of the river are each named simply 'paltan' (regiment). At the bottom, left of the river, are 440 guns on carriages, and below that the bullocks for the gun carriages. Near the top is the bungalow of the British resident, with a note that he keeps only one company, but no army.

98.2 Udaipur and Nathdwara (north at top). This map is on a much smaller scale than the previous one. In several places distances of 20 and 30 cos are given, but with no clear marks to show exactly where the measurement begins and ends. Nathdwara town and temple is at top right, with a note that the boundary wall is a permanent construction. The temple at Khankroli is in the upper centre, and the vertical rectangle above it marks the stable for 1200 cows. At bottom left and right Bhilwa and Mewar are named. Most of the inscriptions in the centre refer to either mountains or the estates of Maratha landlords. The rounded strokes forming a rough circle depict mountainous areas.

98.3 Baroda (north at top). The old locality, containing the Phadnis residence, is in the southern quarter of the town, with a stone masonry wall at the outer edge. The palace is in the quarter on the right. The town is neatly planned around two intersecting market streets, leading to the four gates. A gateway leads to the newer part of town, with a built-up tank on the left. Beyond the tank is the residence of Diwan Raoji Appaji, and across a road is the Suryanarayan temple, drawn in elevation. Gopalpant Deodhar also lived here, in the Raopura area. On the right of the road lived Gangadhar Shastri, and near the gate to the old town was Veniram. At top right was the British residency, and at lower left many two- and three-storied buildings.

98.4 Mathura (west at top). The Jumna river flows from west to east with the town of Mathura on the left of it in the centre. The long mountain on the left is Goverdhan. Centre left is Bharatpur, 12 cos from Mathura. The English cantonment is just outside Mathura. At the bottom is Dholpur, with the raja's cantonment on the left. Across the Jumna is Gokul, with a police station next to it.

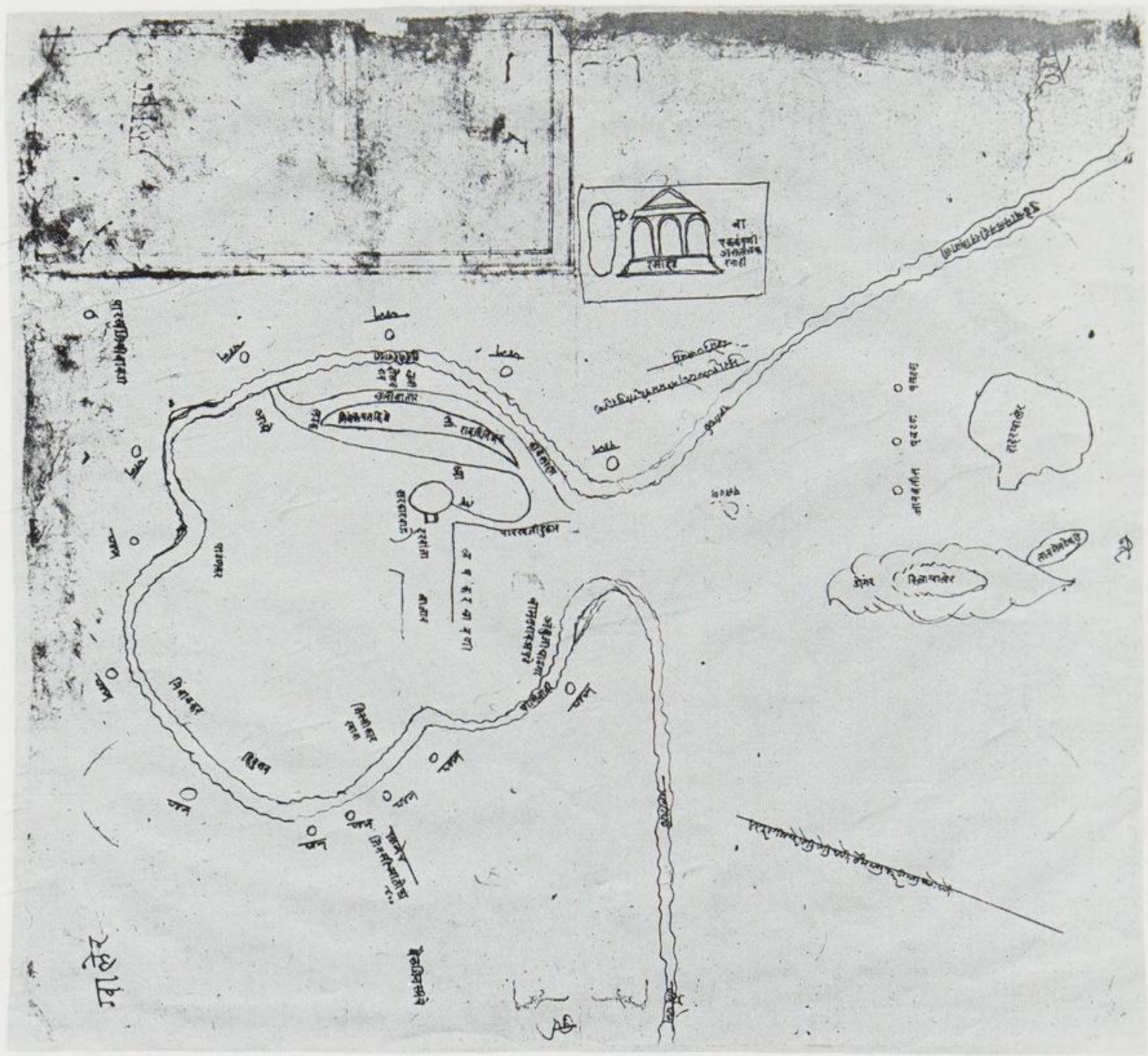
98.5 Ajmer (north at top). The town is on the left, dominated by the Khansahib pir in the rectangle. The boundary wall is built of bricks and mortar, and broad enough to take a cart along the top. Inside the city are many three- and four-storey buildings. On a line of hills to the left of the town is the fort 'at present in the hands of the English'. The circle at upper right marks Kishangarh. In the upper left corner is the maharaja's territory, with Pushkar shrine between hills. Buildings have been constructed there at a cost of five lakhs.

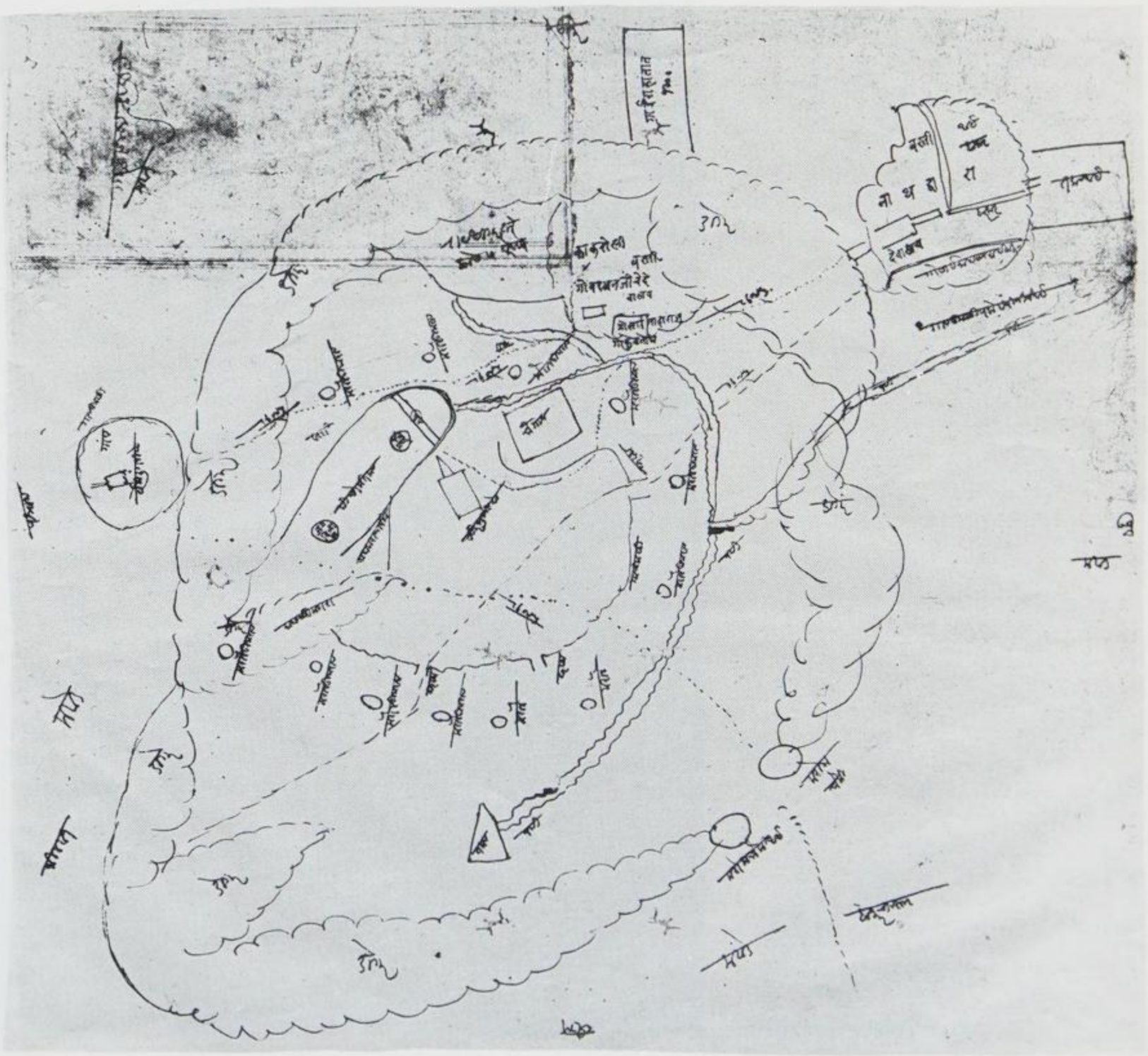
98.6 Brahmavarta (north at top). The Bhagirathi river flows down the right of this map. On the left of it is the town, with emphasis given to places of interest to Marathas. South along the river is written 'Bajirao stays here' in the rectangle near the bazar where 'his people have built their houses'. To the left, in the square, is Bajirao's new garden (Baji Rao

II was Peshwa 1796–1818). At bottom right is 'Japuswi chhavani' (meaning unknown), which is nine cos from Brahmavarta. The land across the river is under Dara's rule.

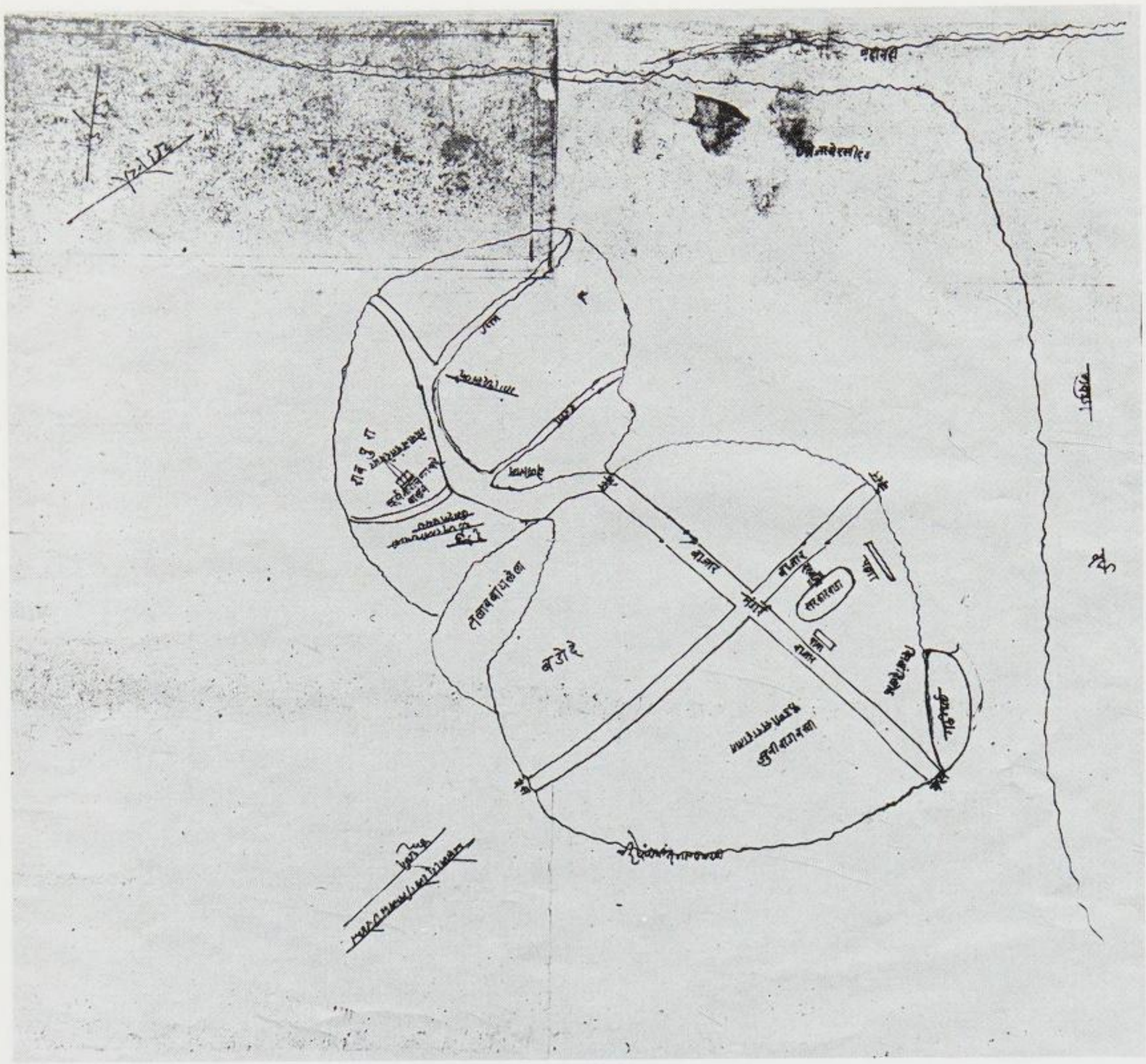
98.7 Agra (north at top). The city is shown as a circle on the south bank of the river, with the fort, under the occupation of the British, in the upper part. To the left of the fort is Keshbibi's tomb. The bungalows of the English are within the town on the right, and beyond them is Dalavni. Chhavani is between the town and the river. From the east gate of the town the road to Gwalior is shown.

98.8 Pratapgarh (north at top). Shivaji had a fort here, in the Western Ghats south of Pune. The town is in the semicircle lower left, with Raja Sawant Singh's fort within it. A note running down to the corner states that the forests and mountainous terrain continues for 70 cos. Each of the four town gates is protected by two guns. In the upper left corner, twelve cos away, is the old palace in a circle, and three cos beyond that the English cantonment. Distances are given in many places on the map, but the names of the towns they refer to are not clearly written. The lowest circle on the right marks Mansar, with distances of seven to 22 cos to various places. There is dry, rocky terrain to the west, which continues for five cos northwards.

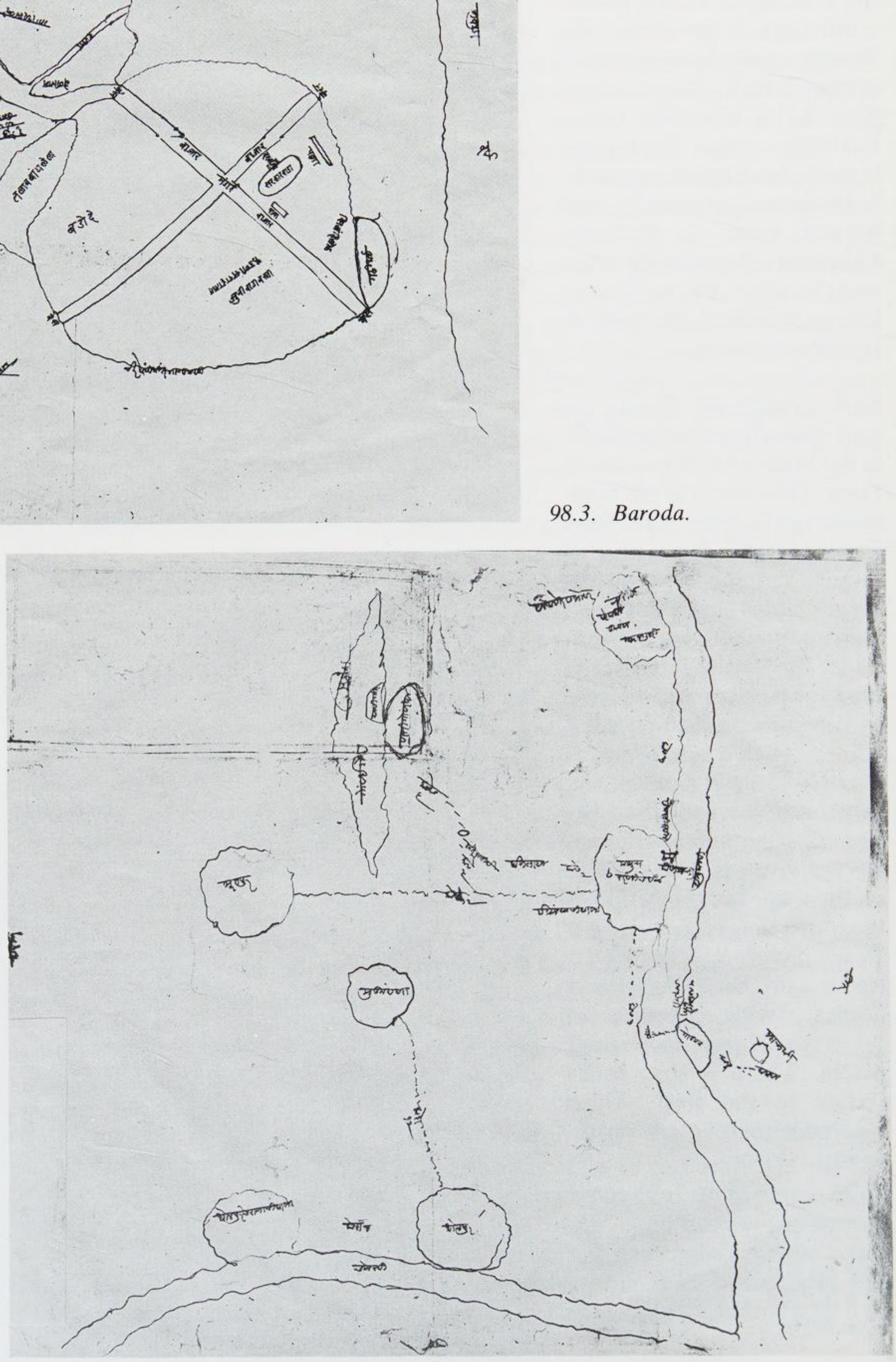




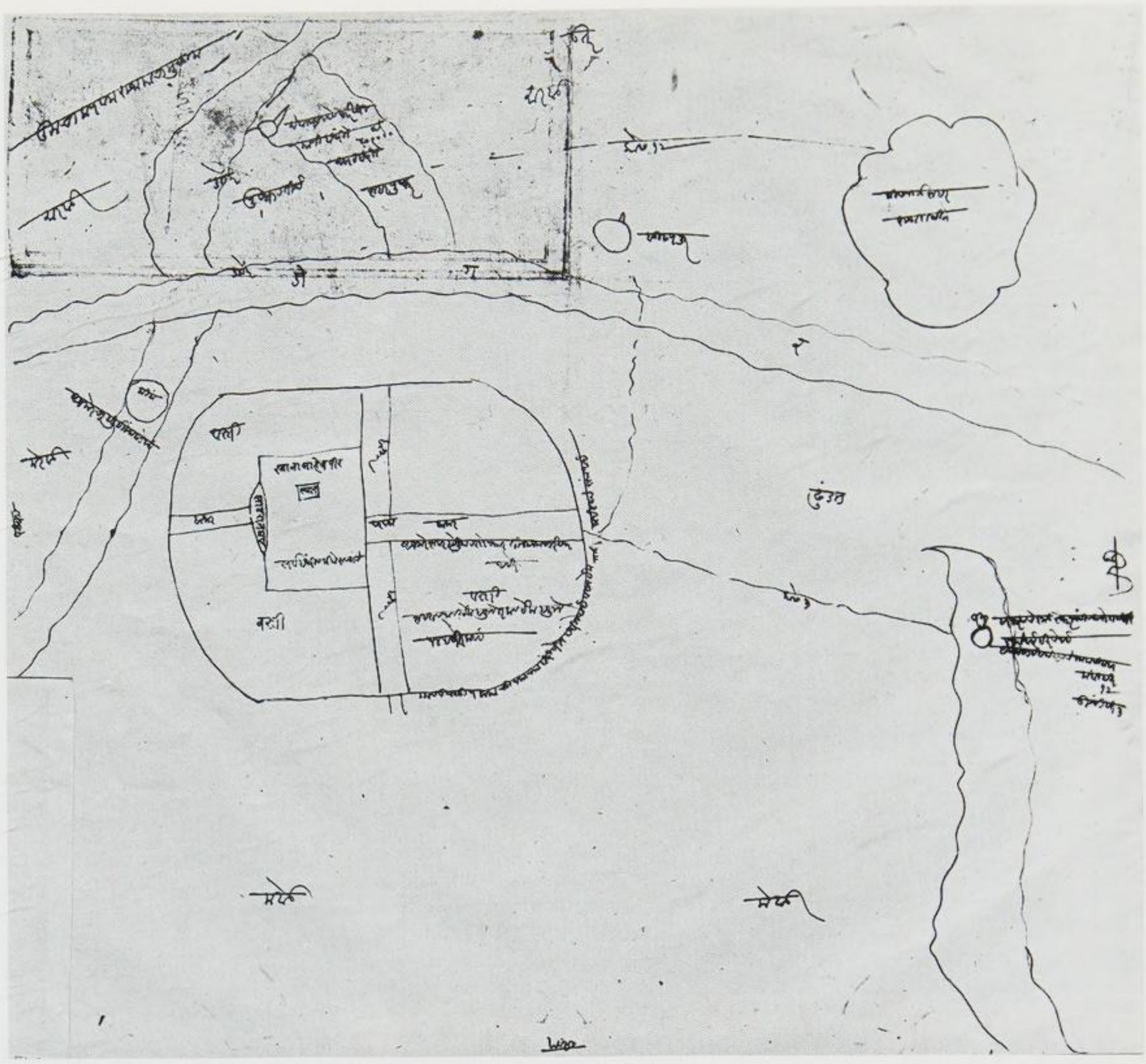
98.1 (above). Gwalior.
98.2 (below). Udaipur and Nathdwara.



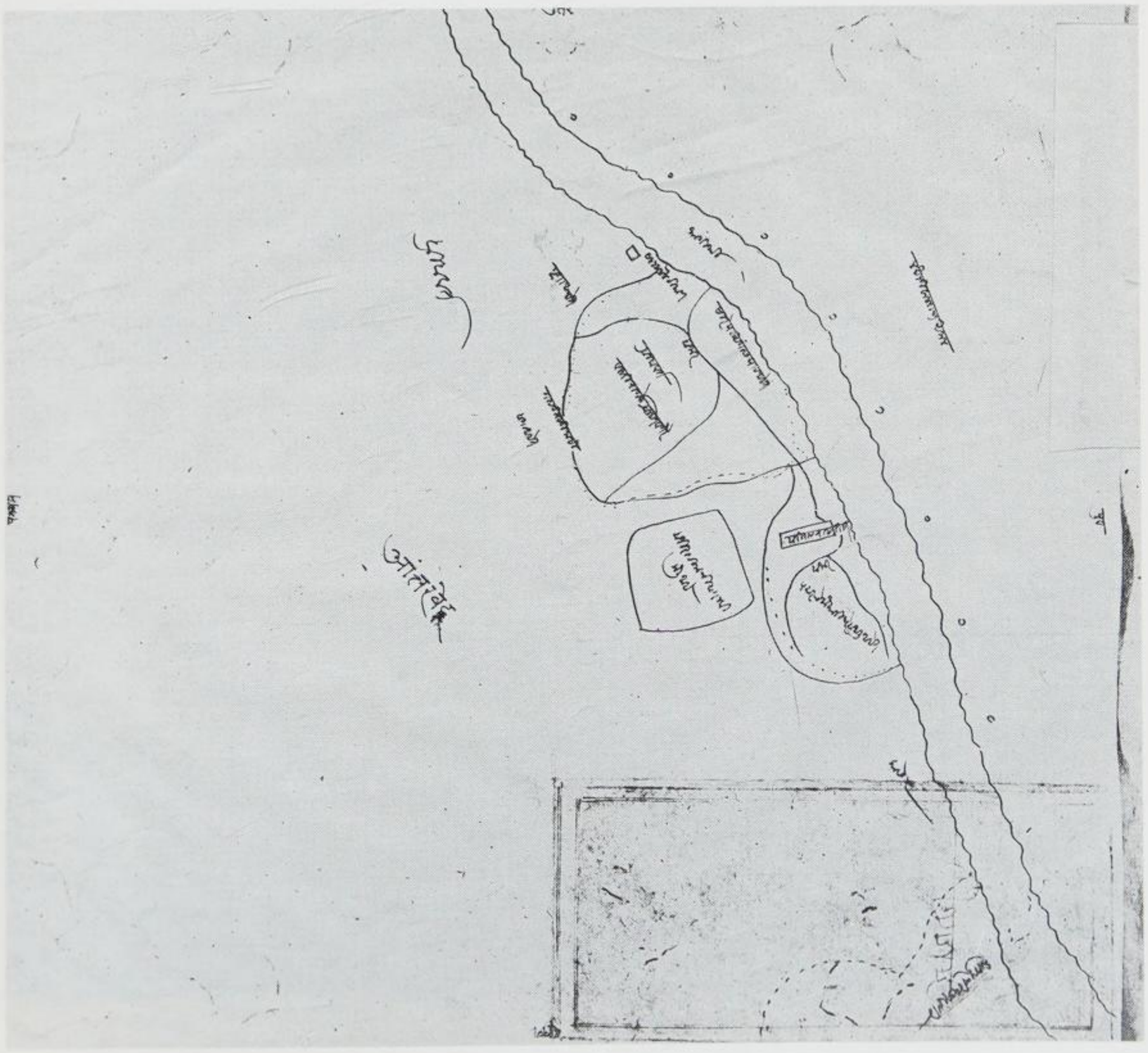
98.3. Baroda.



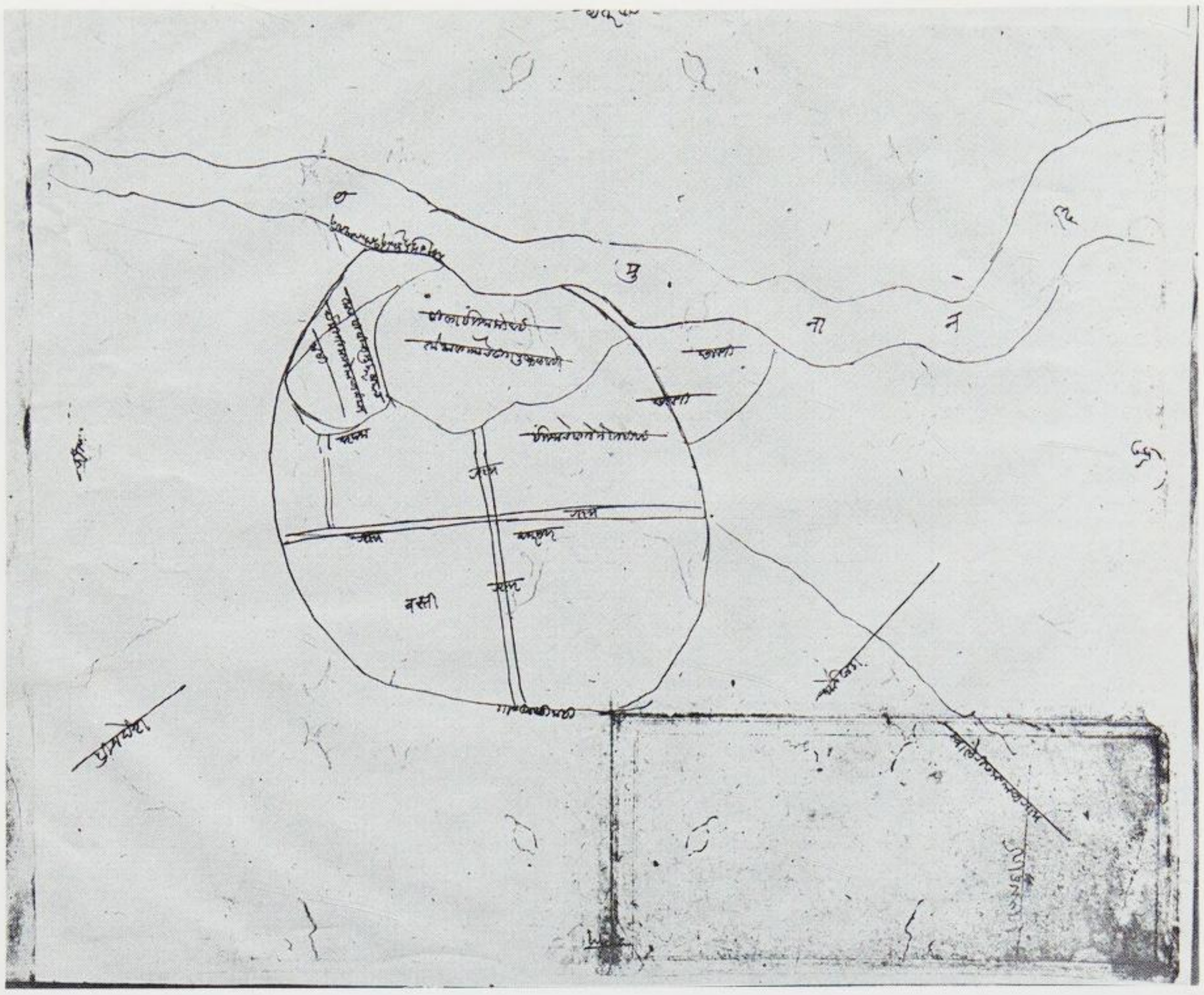
98.4 . Mathura.



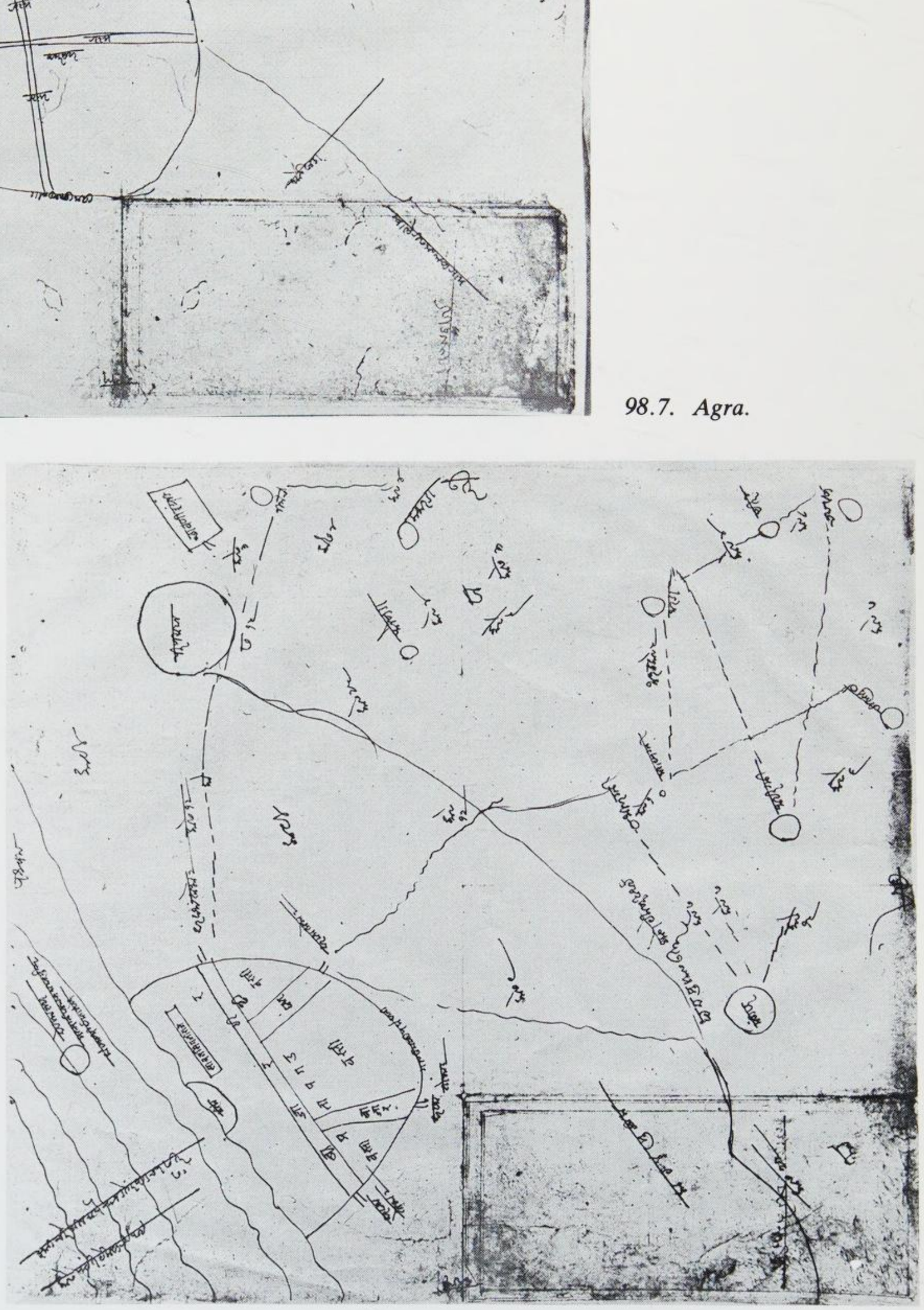
98.5. Ajmer.



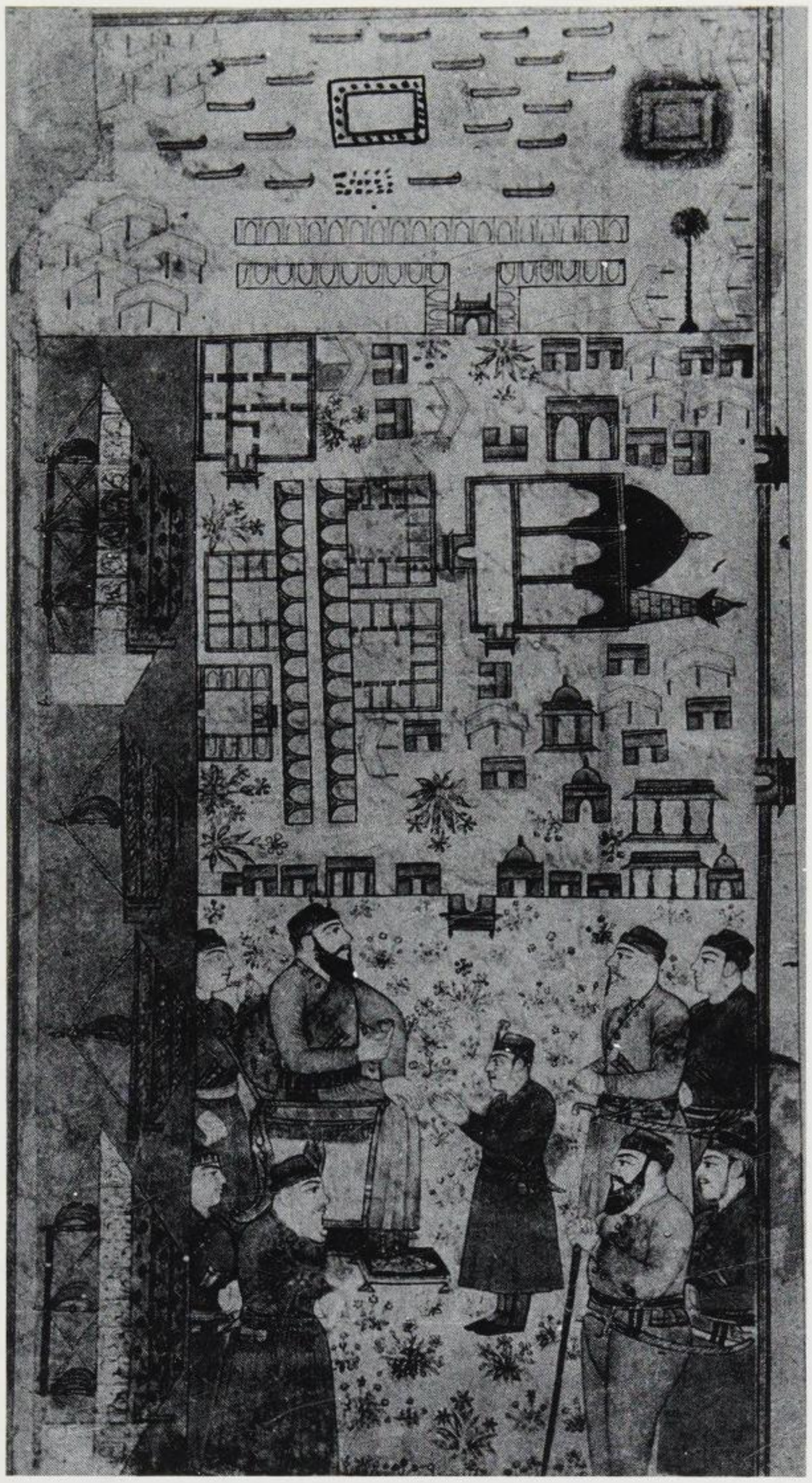
98.6. Brahmavarta.



98.7. Agra.



98.8. Pratapgarh.



99
Title [Indian port]
Size 13 x 24.5 cm
Language —
Script —
Material Paper
Location New Delhi: National Museum
Cat. no. 58.13/69
Bibliography —

99

Nothing is known about this little miniature painting, except what can be seen within it. The main subject was presumably an audience with the seated provincial governor for the group of Parsi merchants or landowners. The geographical details which fill the rest of the painting show a port, with ships on the sea, and smaller boats drawn up on the shore at the top. Within the walled town is a large mosque and various other buildings, streets lined with shops, and haveli-type compounds behind them. Less permanent structures are also indicated by tent-like forms. Two water tanks are near the top, and another street of shops or small houses is outside a gate, though still within the city walls. It is, perhaps, a port on the Gujarat coast, such as Navsari.

100
Title [Jodhpur]
Size 126 x 109 cm
Language Jodhpuri
Script Devnagri
Material Paper on cloth
Location Jaipur: City Palace Museum
Cat. no. 121
Bibliography —

100

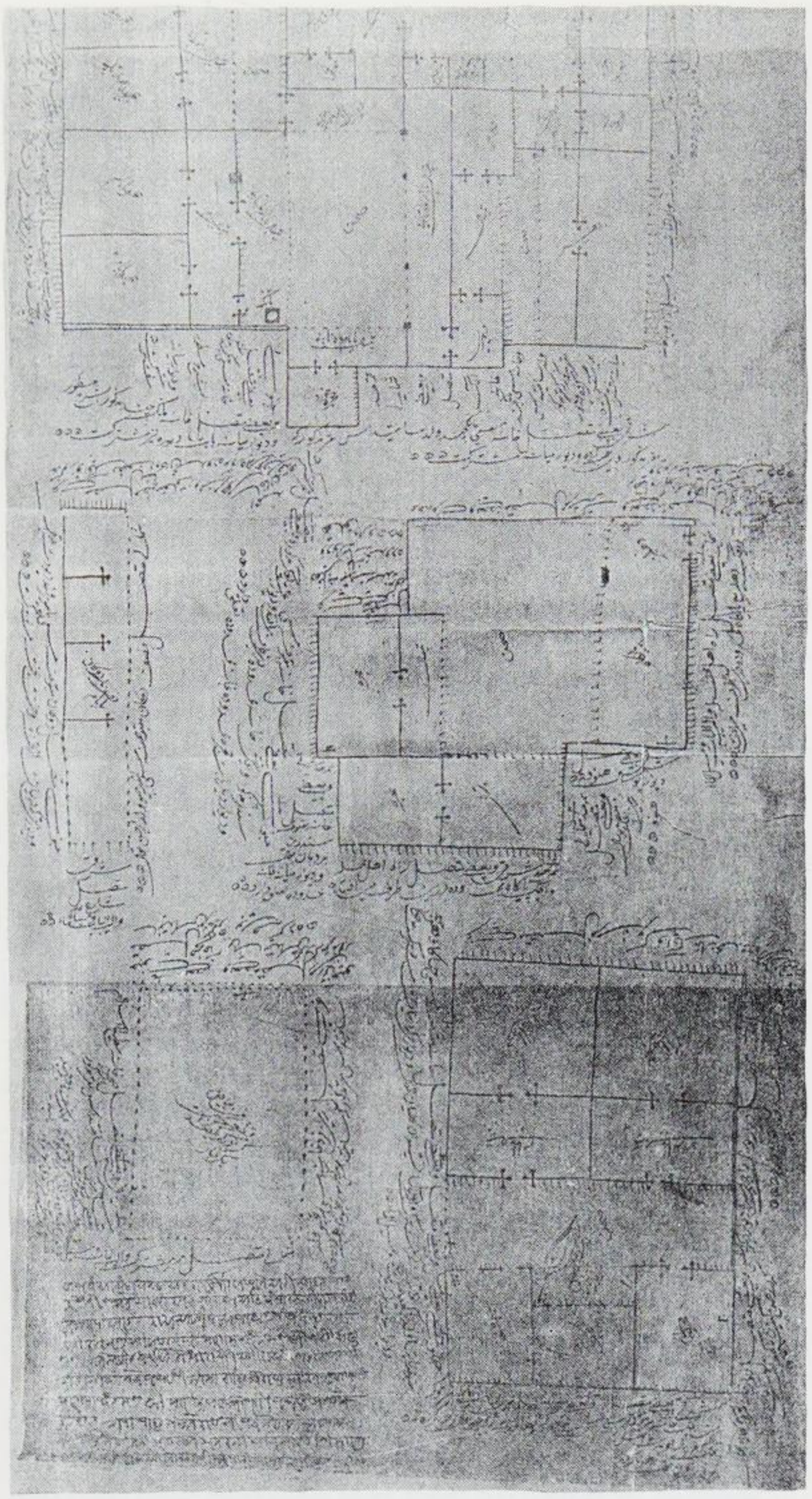
No date is known for the pleasing little map of Jodhpur. The style differs from other maps in the Jaipur collection, but cannot be linked with any other. One commentator has stated that the text is in the Jaipur dialect, Dhundari; another found difficulty in understanding some of the words, and suggested that they were in a Jodhpuri dialect. The writing is all to be read from one direction, with north at the top.

The palace on the hill is the dominating structure within the town. The artist has attempted the difficult task of showing the walls on the ridges of the hills, and yet giving an idea of the ground plan.

The town gate at the bottom is the Sojat Gate, with Ratnada colony outside. The two water tanks on the right are the Shekhawati tank and the Gulab Sagar. Outside the wall are Ram's well, with sal trees around it, and the Naulakhonbauli, the nine lakh well.

Within the town, most of the temples and shrines have been named, and also many of the private houses. Just outside the gate leading to the palace, next to the rocks, is the residence of Munhta Nainsi, author of the gazetteer *Marwar ra Parganan ri Vijat* in the 17th century, whose brother included the chart based on Sojat [10] in his book of historical tales. On the right of his house is the mausoleum of a saint, Shah Fakir.

Though many of the buildings have been drawn schematically and conventionally, their locations seem to be based on their real situation, and the clusters of buildings with space between were probably correctly shown.



101	
Title	[House of Seth Shantidas]
Size	?
Language	Persian
Script	Persian
Material	Paper
Location	Karachi: National Museum of Pakistan
Cat. no.	—
Bibliography	Abdulla Chaghatai in *J. Asiatic Soc. of Pakistan* (Dacca), 1971, XVI, pp. 63–77

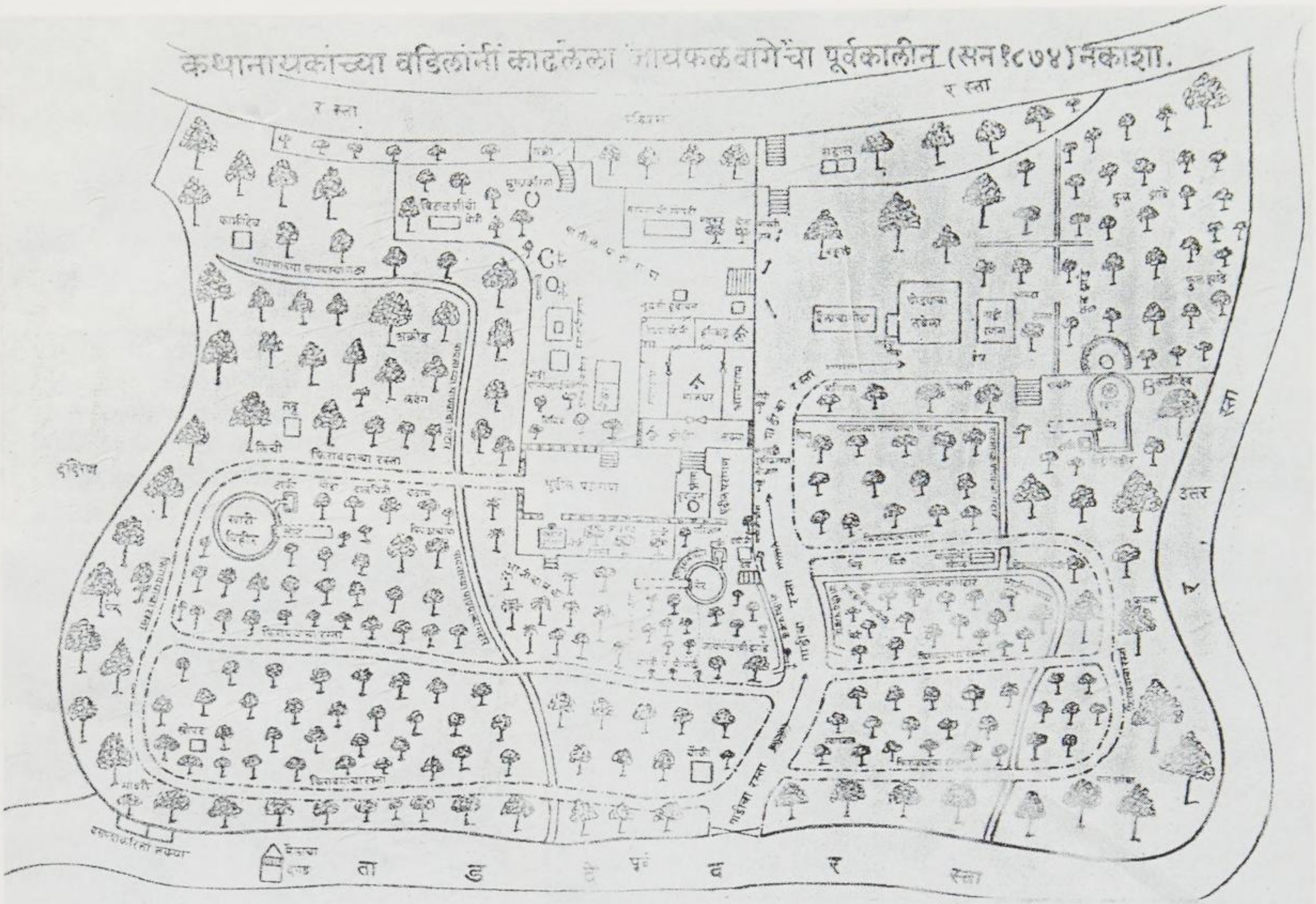
101

This scroll is one of the few maps illustrated here that the author has not seen personally, and all information is taken from the article by M. Abdulla Chaghatai.

The house plans are included in a long scroll recording the legal gift of a house by Seth Shantidas, the *Nagar Seth* ('mayor') of Ahmedabad, to one of his four sons, named Lakhshmi Chand. The Seth called himself a devotee of Islam, though obviously a Hindu, as were both the witnesses. The scroll is dated 1057 A.H. (1657 A.D.) (This should probably be 1067/1657.)

The author of the article has given a translation of the scroll, omitting the repetitive legal portions. The plans were apparently dispersed through the text, placed wherever that part was being described. The text gave detailed demarcations of the limits of the property, and noted where walls or courtyards were common to adjacent properties. It was double-storied, built of bricks, timber, beams and mud, and was situated within the walled city of Ahmedabad, in the haveli of Jauharwar (jewellers), a quarter known as Jawahar Pal in Lakhshmipura.

Nowhere in the translation is there any suggestion that such plans were novel or unusual. Shantidas was influential during the reigns of Jehangir and Shah Jahan though never being in the direct employ of the imperial government. He loaned money to the imperial court among others. At the time of his death he was titular owner of the hill and temple of Palitana, and had been granted the revenue from temples at Girnar and Mount Abu. So he was certainly conversant with the use of maps, since pilgrimage maps were used from an early date; and being a moneylender, he had probably been of service to the Europeans at Surat and elsewhere. If more such house plans are found, it might establish their regular use, and how they originated.

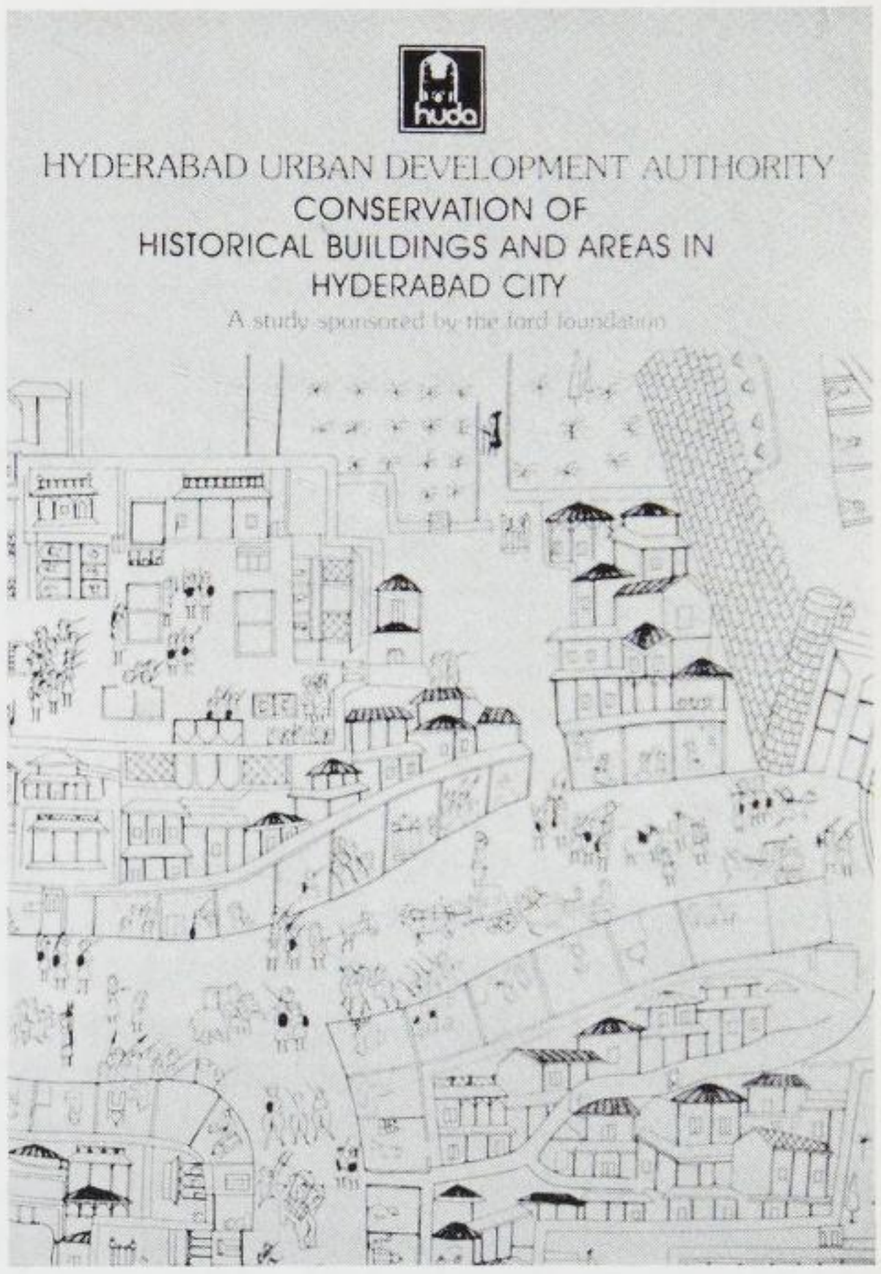


102
This is a modern map that was drawn in 1874 A.D. It has been included here because it contains so much of the traditional styles of cartography, along with more modern European methods. It depicts a small area in a suburb of Bombay, the home of Shripada Narayan Sathgar, and was printed in 1941 in a biography of his son.

All four directions are named, with west at the top of the page. Roads and buildings are shown planimetrically, but the symbols for trees are used to depict orchards, with some types of fruit trees named. The different sizes of roads are well expressed. Steps between different levels have been drawn, but there has been no attempt to show the height of the buildings. There is no scale, and no indication of distances. While most of the writing is to be read from one direction, in some places it has been re-oriented to fit the space.

102	
Title	Jaiphul Bagh in Bombay
Size	?
Language	Marathi
Script	Devnagri
Material	Printed on paper
Location	Seen at Bhau Dadi Lad Museum, Bombay
Cat. no.	—
Bibliography	*Dr. Vasant Gangaram Rele, his Biography*, Bombay,1941 (in Marathi)

103	
Title	[Hyderabad]
Size	275 x 215 cm
Language	Persian (one word only)
Script	Persian
Material	Cloth
Location	Hyderabad: Idara Adabiyat-e-Urdu
Cat. no.	—
Bibliography	Used on cover of *Conservation of Historical Buildings and Areas in Hyderabad City*, Ford Foundation, 1984



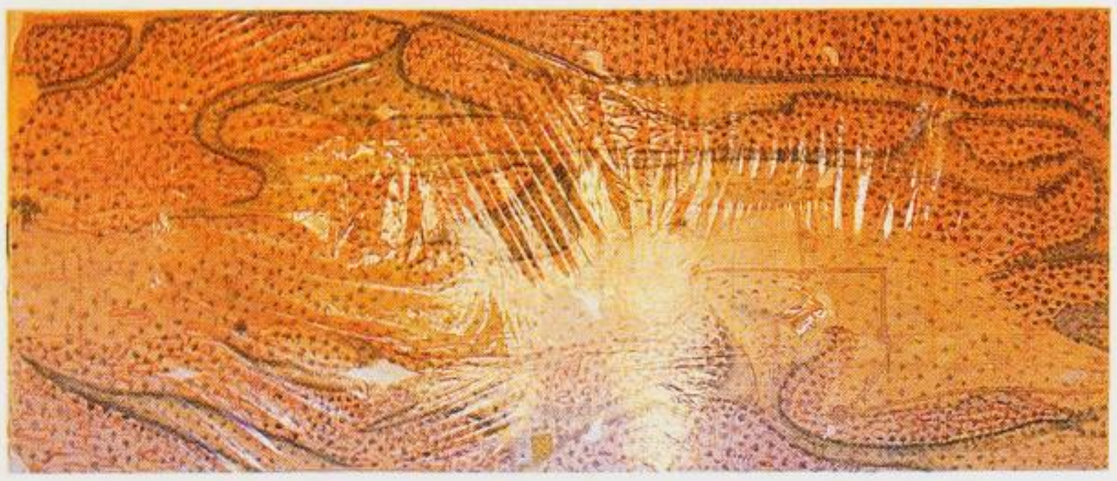
103

It has been recorded, by the founder of the library in which it is kept, that this map was made in 1772. It was acquired from the collection of Inayat Jang, minister to the Nizam of Hyderabad at that time. He has left extensive collections of papers, but no other maps have been discovered so far among them. The map is in extremely poor condition, the cloth rotting, and the lines almost faded away. It is hung on a wall behind glass. Details from it that were used for a Ford Foundation publication (shown on the right above) were touched up before printing. However, this is one of the few instances where an indigenous early map has been used in modern planning.

The town of Hyderabad on the south bank of the Musi river is encircled by a strong wall, painted blue on the map. Great attention has been given to depicting every house along every road, some double-storied, some single, and a few with three storeys. The Char Minar, Mecca Masjid and other important religious and civic buildings are delicately drawn in elevation. There is one single toponym: Darulshifa, the name of a hospital, written in Persian.

The roads are filled with people, all drawn with great exactitude. Some carry weapons, others are on bullock-carts or palkees. There is a wealth of sociological detail, but no study is known that compares the map with the town to determine its accuracy.

No photograph of the full map was possible, because of the position in which it is hung. The two details above both show the same part, on the right side of the map.



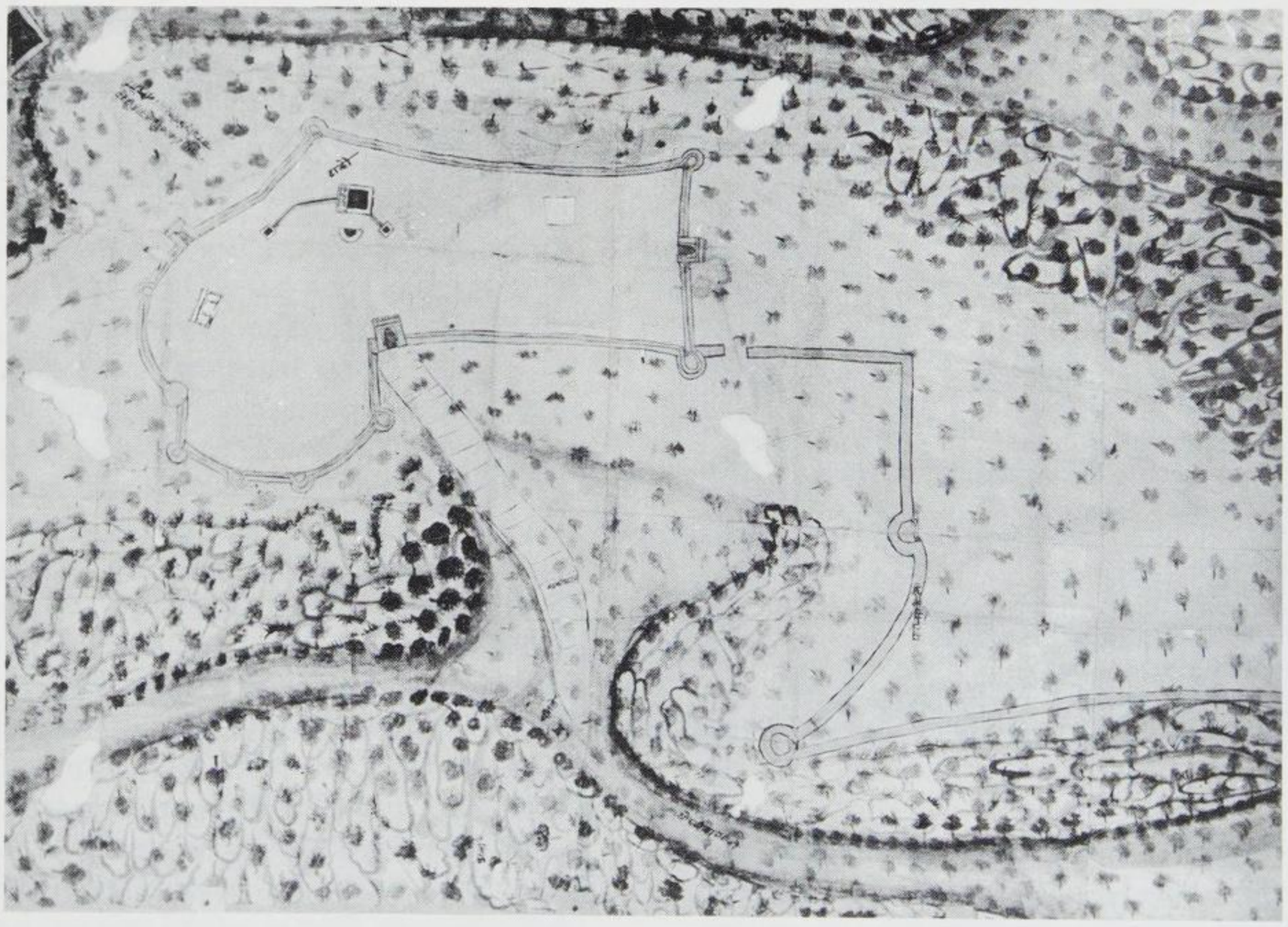
104	
Title	[Jaigarh]
Size	103 x 244 cm
Language	Rajasthani
Script	Devnagri
Material	Paper on cloth
Location	Jaigarh fort, Jaipur: Museum
Cat. no.	—
Bibliography	—

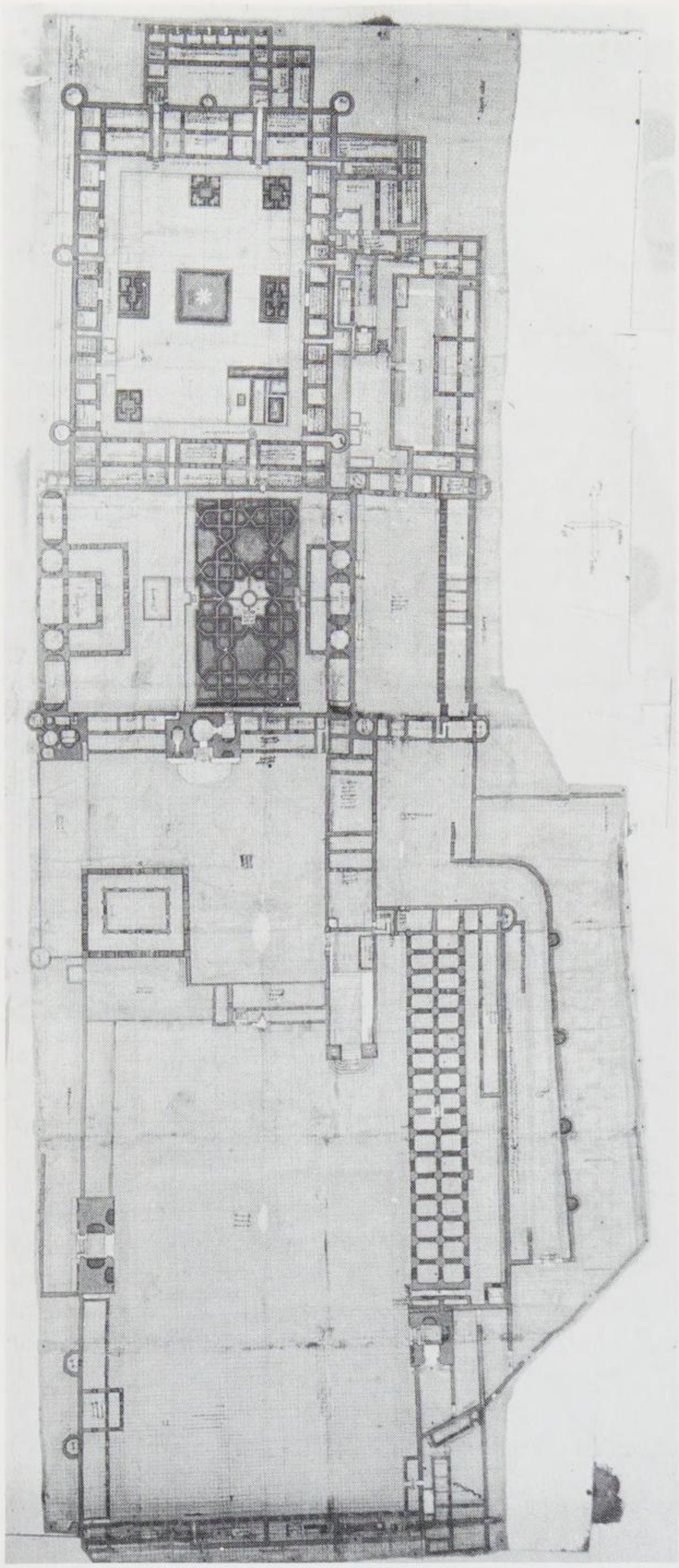
104
The fort of Jaigarh is on a hill above the palace of Amber, the former capital of the Kachhawaha Rajputs. There is some uncertainty about its origins, since the hill-top was occupied by the Mina tribe before the Kachhawahas took control, but legend has it that the site was chosen by Raja Man Singh (ruled 1589–1614) to store his accumulated wealth.

The map illustrated here is undated, and there is very little text on it. (Unfortunately no good photograph of the full map could be obtained.) It covers a wide area, in which the rudimentary line of the fort wall occupies a small area. No internal buildings seem to have been built at this stage. There is a note that two more water tanks are to be constructed, of which one has been drawn, and the other is to be in the hills, and not yet shown.

At the bottom of the map the Mansurmata temple near the Delhi–Amber road has been drawn and named.

Jaigarh must have taken its name from the raja Jai Singh, and presumably from the earlier of the two with this name, Mirza Raja Jai Singh, who ruled from 1621 to 1667. But it was probably his descendant Sawai Jai Singh (ruled 1699–1743) who built the elaborate fort that can be seen today. Whether this map dates from the first Jai Singh or early in the reign of the second has not been established. If it was ordered by Mirza Raja Jai Singh, then some of the other maps in the Jaipur collection can be given earlier dates. At that time there was little contact with Europeans, though Manucci was with Mirza Raja Jai Singh during his campaigns in the Deccan. More needs to be known about the use of maps at this time in India.





105

105
Title [Amber]
Size 300 x 97 cm
Language Rajasthani
Script Devnagri
Material Paper on cloth
Location Jaigarh fort, Jaipur: Museum
Cat. no. —
Bibliography —

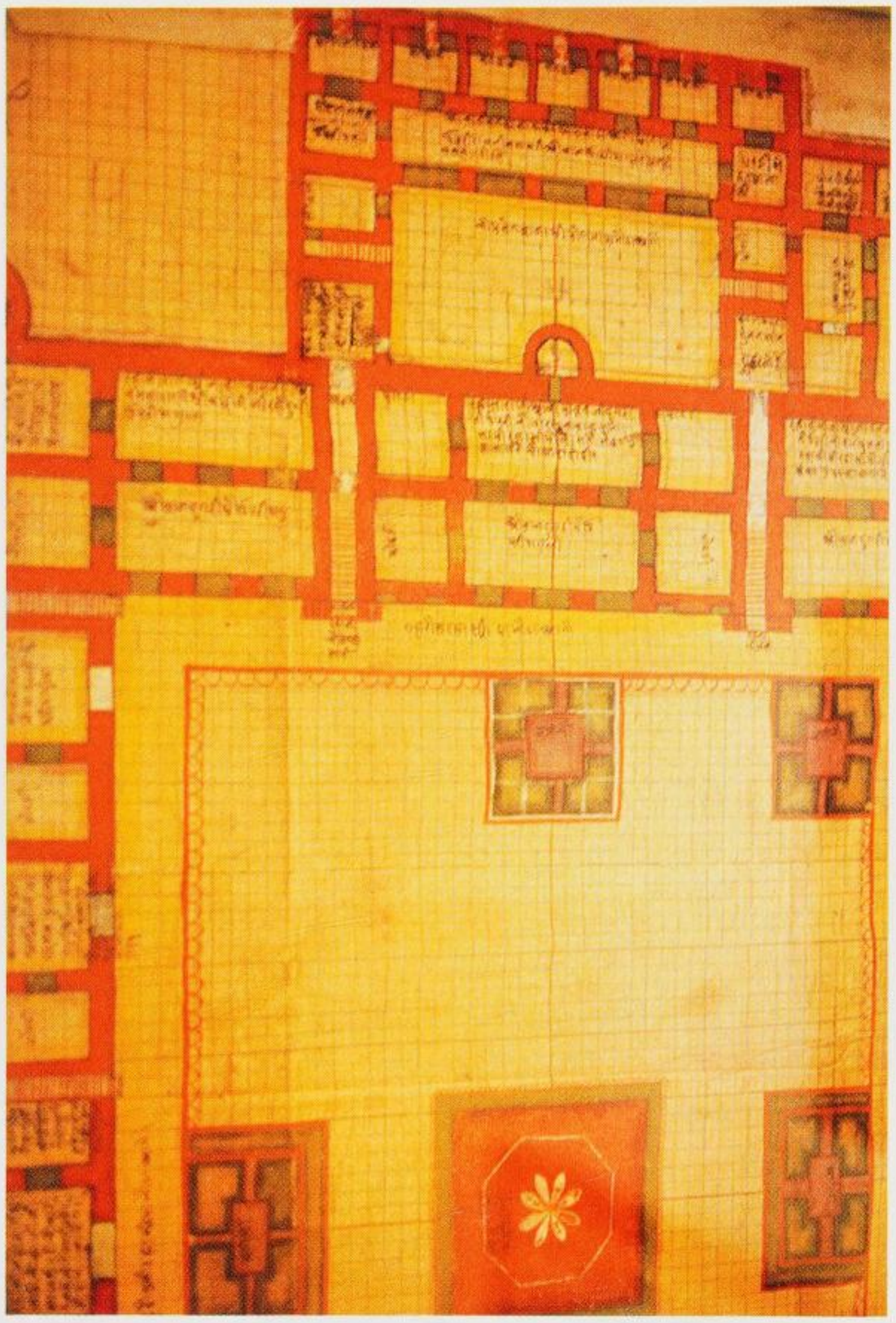
105

This very detailed plan of the palace at Amber is drawn on hand-made graph paper, the squares measuring approximately five squares to four cm. On it are notes recording when certain repairs were carried out or additions made. These dates range from Samwat 1706 to 1738 (1649–1681 A.D.). There is no record of when the map was made, whether contemporaneous with the earliest repairs, or at any time up to the abandonment of Amber when the new city of Jaipur was ready in 1727.

Either the use to which each room was put, or the occupant if it was a living room, is given on the plan. Thus the name of Jadamji, wife of Mirza Raja Jai Singh, is found on one room. Above the room is a dome, where her maid sleeps, presumably on a small gallery around the wall below the dome. At the right the four directions have been given, with north at the top as it is printed here, but the writing is to be read with east at the top. The inscriptions on the map are to be read from all sides.

No comparison of the map with the actual remains of the palace at Amber is known, since the map was only recently discovered at Jaigarh.

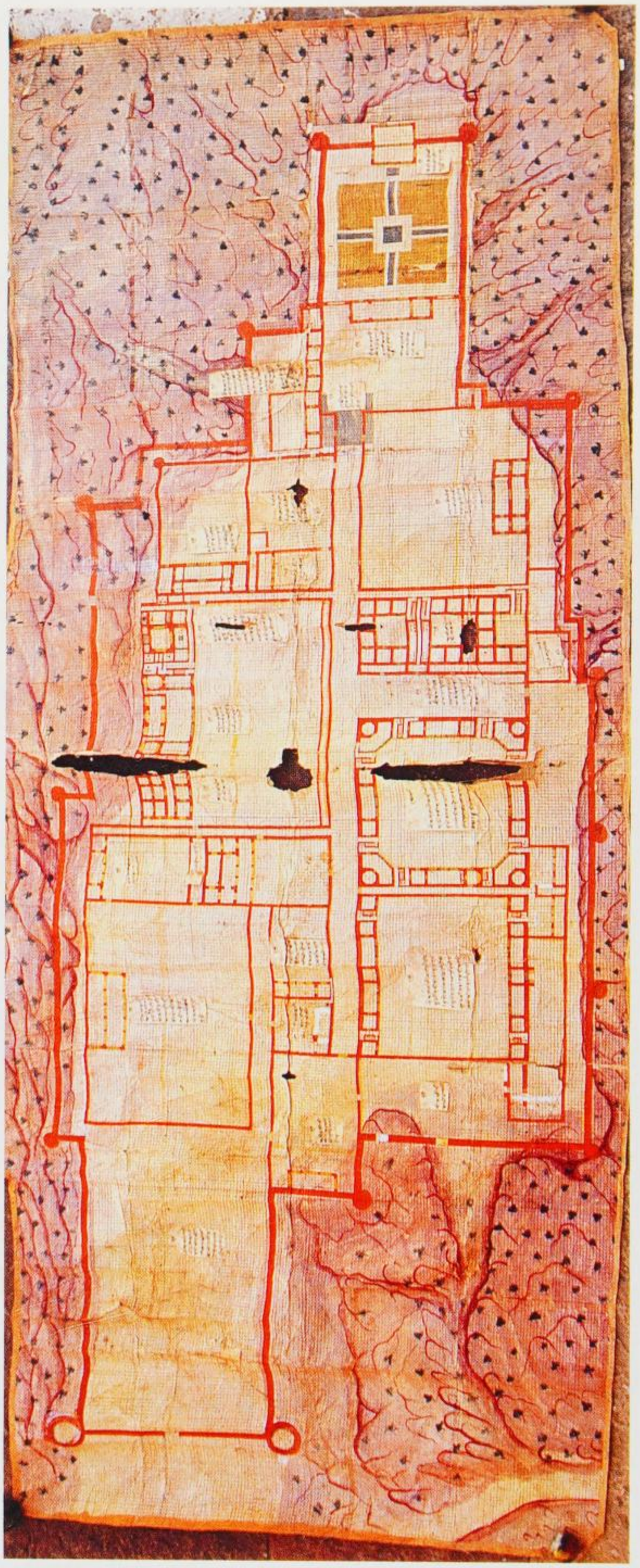
106
Title [Chilkatola/Jaigarh]
Size 125 x 292 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 59
Bibliography —



105a

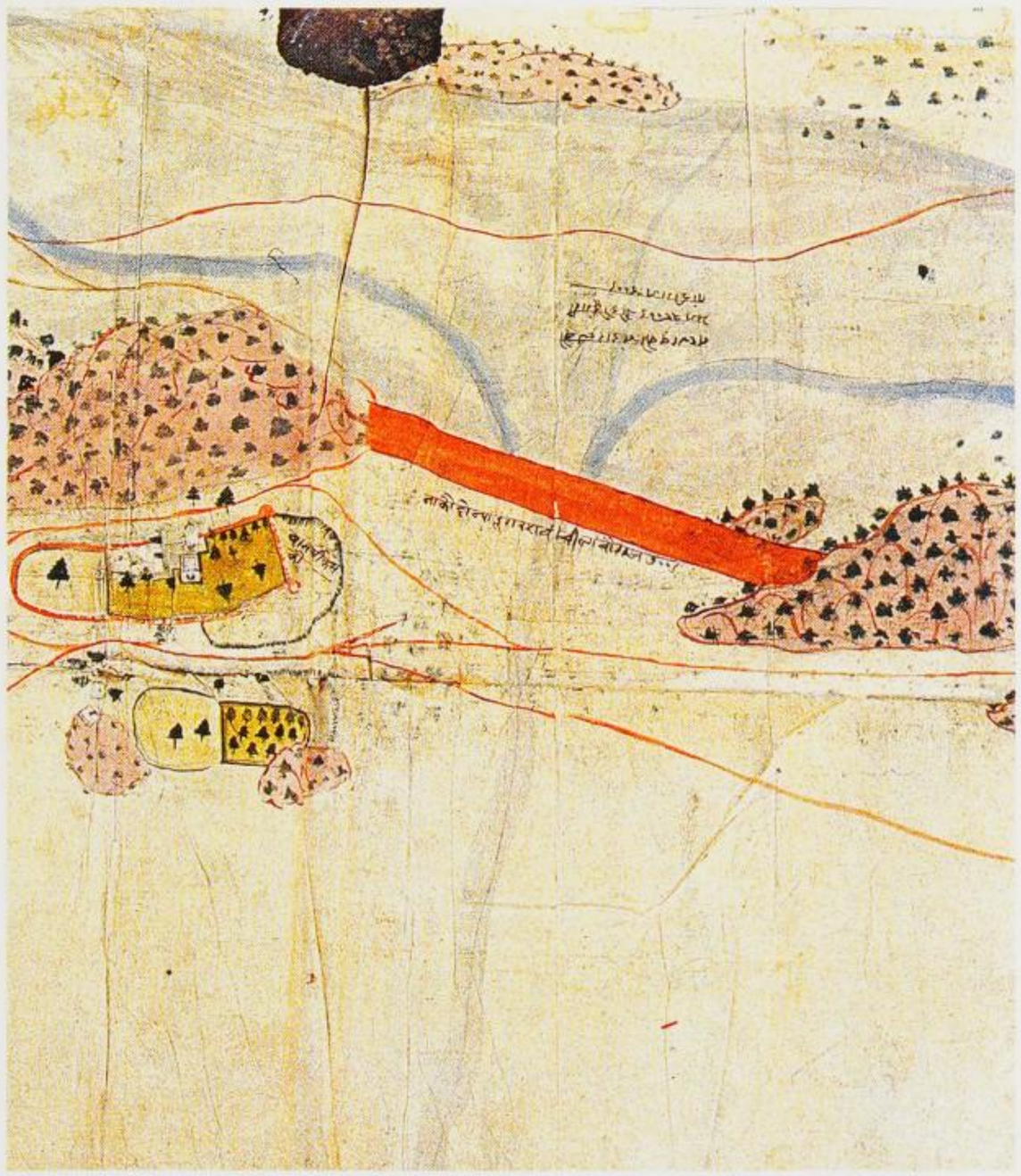
106
This plan of the fort at Jaigarh is on a larger scale than the earlier one [104]. The title written on the back calls it 'Chilh ka tola', its name perhaps before it was honoured with that of the raja. Though an earlier fort had existed, it was rebuilt and considerably enlarged in 1726, and as the map appears to be a progress report for the engineers in charge of the work, it probably dates from that time.

On the basic plan have been pasted small pieces of paper giving an account of the work, and what remains to be done. The first note at the top right corner states that two towers are proposed here. Just below the square garden is a proposed open terrace and small garden, with a small garden pavilion to be used as a night shelter, six gaz (yards) below the larger garden. In the large square below, a chamber as that at Jaisinghpura (the formal name for Jaipur in the early days of its existence) was suggested. On the left side of the plan were elaborate details for construction of kitchens and storehouses, with rooms for heating water, preparing medicines, etc. Just below, the chamber was of the pattern of one at Sanganer and required only one more month of work.



106

Lower down, in another room, only the plaster work remained. On the right side, the zenana compound was ready, with shutters complete, but the paving was still to be laid.



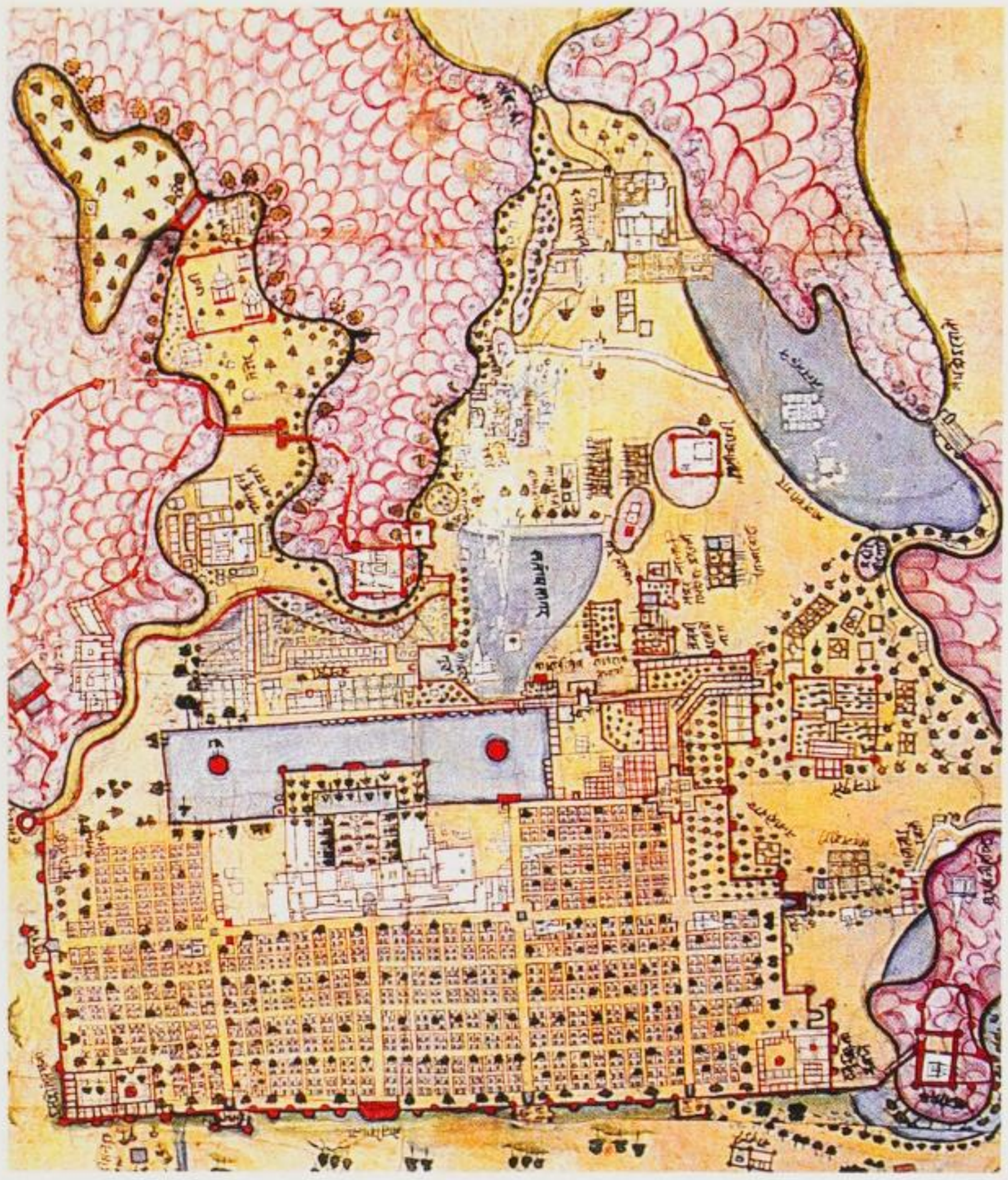
107a

107
Title [Amber]
Size 350 x 170 cm
Language Dhundari
Script Devnagri
Material Paper on cloth
Location Jaipur: City Palace Museum
Cat. no. 75
Bibliography —

107
This map covers an area of about 35 km north to south (no directions are given). It shows plans for irrigation works near the palace of Amber, and in particular the construction of two dams, shown in red. At the top right corner is the Gujar village of Labana, in the centre is Medsiwas, and at the bottom left are gardens belonging to Purohit Shyamram, Samratji and Mulu Poori.

The larger dam, bottom centre and in the detail, is to measure 700 gaz (yards) in length. Further down to the left, near a small circle is a note that the height here is 50 gaz above the outlet.

The map has been quite roughly drawn, but shows in detail the parts relevant to the dam construction. Hills are purple, as they are in most Jaipur maps, and are covered with conventional trees. The roads are shown as single red lines. Water is usually blue, and gardens green. The information that the map was planned to convey is clearly set down, but other features were also included.



108a

108	
Title	[Amber to Sanganer]
Size	64 x 127 cm
Language	Dhundari
Script	Devnagri
Material	Paper
Location	Jaipur: City Palace Museum
Cat. no.	16
Bibliography	—

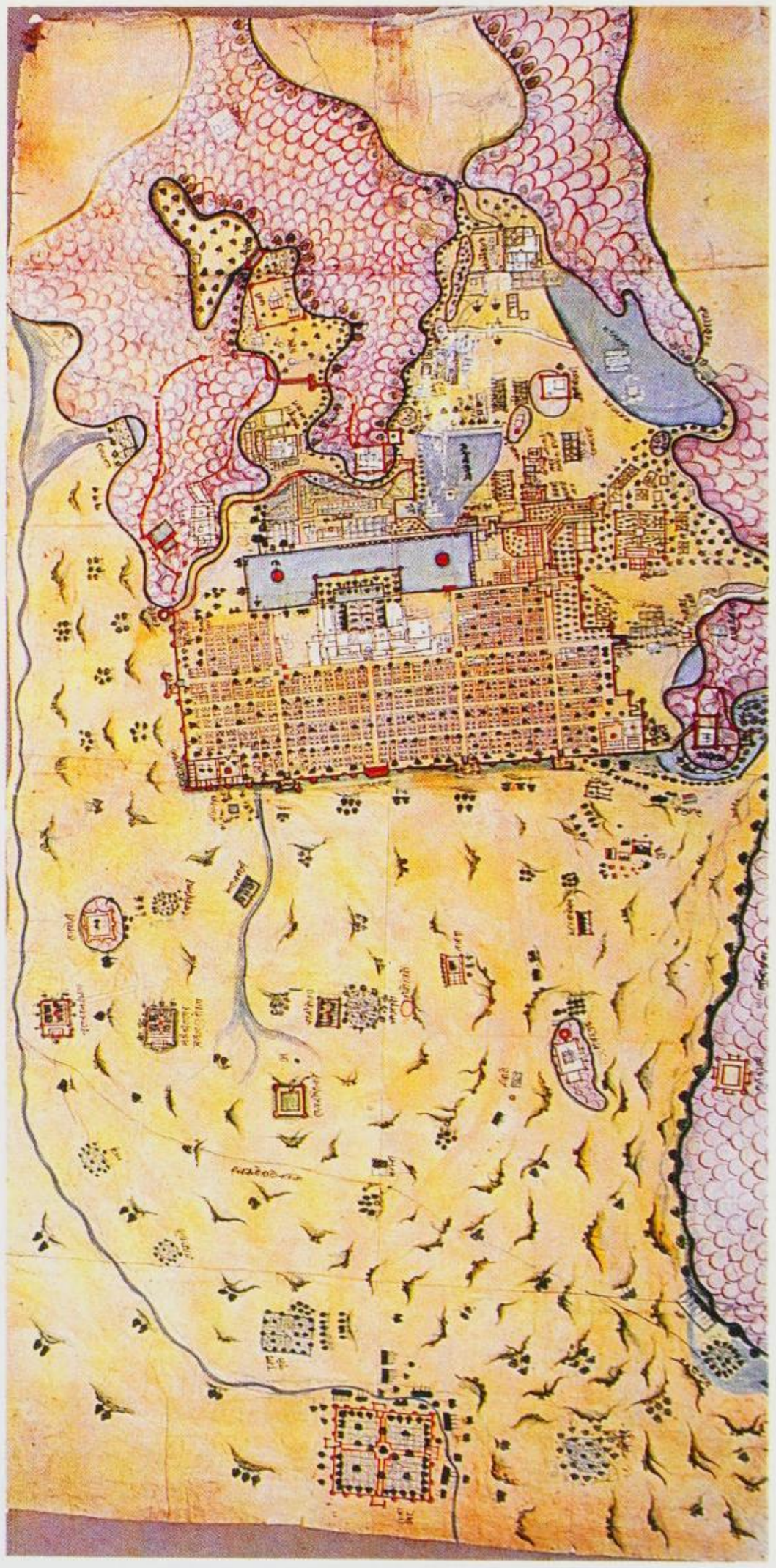
108

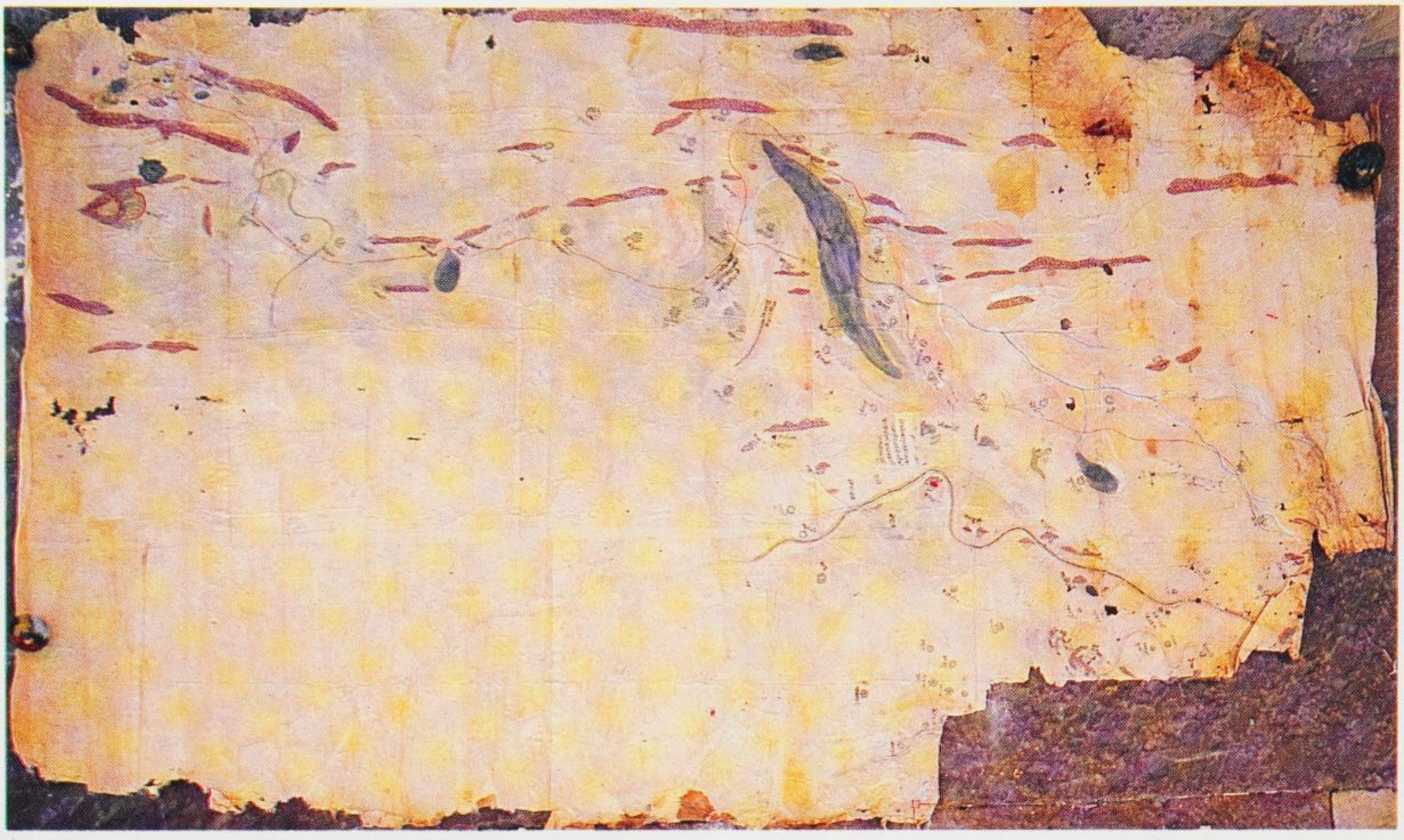
Yaduendra Sahai of the City Palace Museum has dated this map to the last quarter of the 18th century, since the Jal Mahal palace in Man Sagar is shown, which was built in 1775, but there are three memorial *chatris* (pavilions) at Galtor, so Raja Pratab Singh was still alive (he died in 1803).

At the top of the map the pass on the Amber to Jaipur road is very clear. As one comes over it today, the whole of Jaipur is suddenly spread out below. The town of Jaipur with its straight roads, and squared blocks of buildings, has been drawn larger than the scale of the map would warrant, since it extends as far as Sanganer, the small square at the bottom, which is 16 km from Jaipur. The delineation of Sanganer may be compared with that of another map of this town [122], where it is shown as a rectangle.

The purpose of the map was most probably to show the proposed construction of a canal drawn as a thin black line from the stream at the left, across the map to the lake at bottom right. This canal was never built, which may be why the map was neither used in the field nor immediately discarded, but kept at the back of a cupboard in the palace. Several other proposed buildings have been noted, such as a small fort at the end of the drainage channel running from the left end of Jaipur town, and another fort in the hills on the lower right of the map. The large number of toponyms in the map make it an important document for research into the history of Jaipur town.

108





109
Title — Map of Sawai, Sambhar, Ajmer, Pokran to Pushkar
Size — 200 x 123 cm
Language — Dhundari
Script — Devnagri
Material — Paper
Location — Jaipur: City Palace Museum
Cat. no. — 19
Bibliography — —

Beside the road line to the left of Sambhar lake an inscription informs us that this red line denotes the road, on which the maker of the map travelled, and he drew the map from that spot. Another inscription, beyond the lower end of the lake, has been pasted onto the map, and reports that towards the east from Jogner, the Drabawanti canal is 22 gaz (yards) wide at Kolak hill. This hill is named, and the canal makes a loop to avoid it.

The circuitous route of the road was enforced by the large Sambhar lake, and the fact that the ground to the south of it was too mountainous for easy travel. The modern railway follows the same route. Though the map is a rough one, it gives all the information that an engineer would have needed at the time.

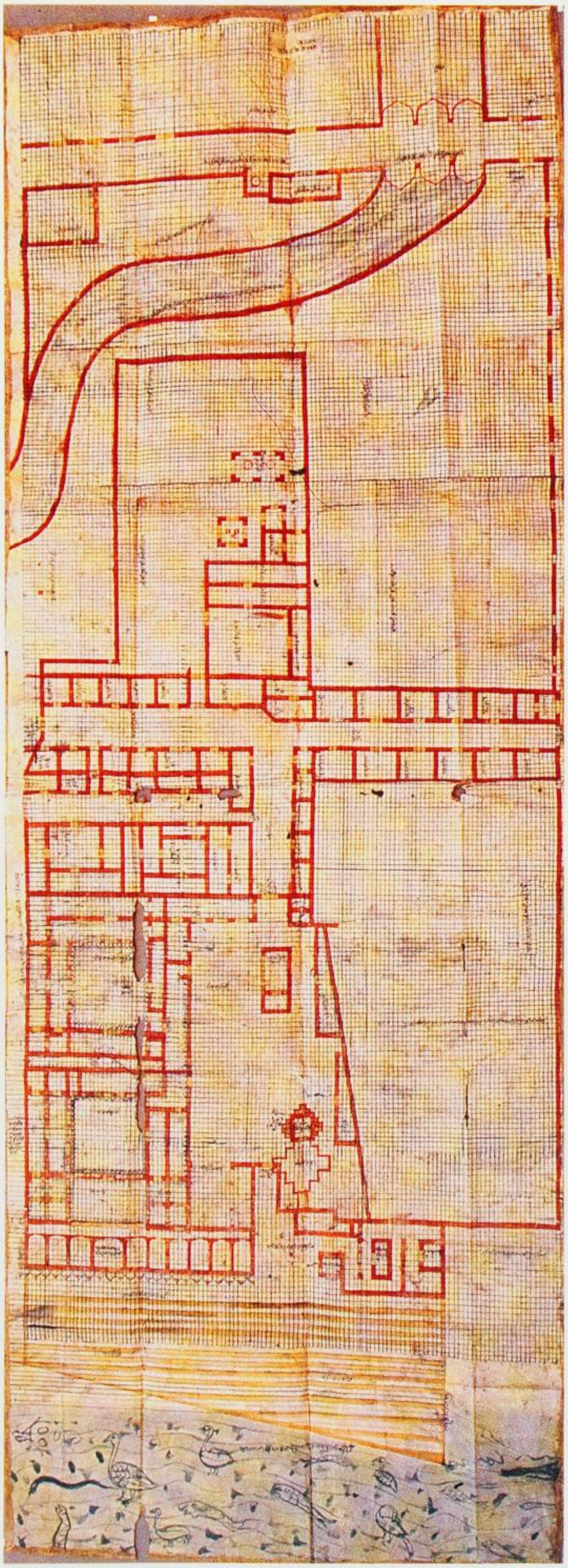
109
The part of this map that is missing, in the lower right corner, would have shown the town of Jaipur, as it was prepared to show how a new road would be built from the capital to Pushkar, the pilgrimage site near Ajmer, at the upper left corner.

110
Title Madhovilas
Size 290 x 91 cm
Language Dhundari
Script Devnagri
Material Cloth
Location Jaipur: City Palace Museum
Cat. no. 53
Bibliography —

110
This map covers part of the area between Amber and Jaipur, with the Mansagar prominently in the lower part. The Jal Mahal in its centre, built in 1776, is included, but other features also point to a late date, the time of Raja Pratap Singh, who ruled from 1778 to 1803. The land granted to his minister, Kawas Kora Ram, for a garden is noted at the left end in the centre. In the upper corner is Madhovilas, with the North Gate named, thus providing the orientation of the map. The names of many other noblemen are also given, as well as dwelling places for groups of artisans, such as potters and gardeners.

At the right end of the map is the Govinddeo temple, with the houses of the priests named and drawn. Halfway along the upper edge of the map is a square with a single outline (two thirds down the right side of the detail); called the Yagshala, this marks the pillar erected to commemorate the site of the horse sacrifice performed by Sawai Jai Singh.

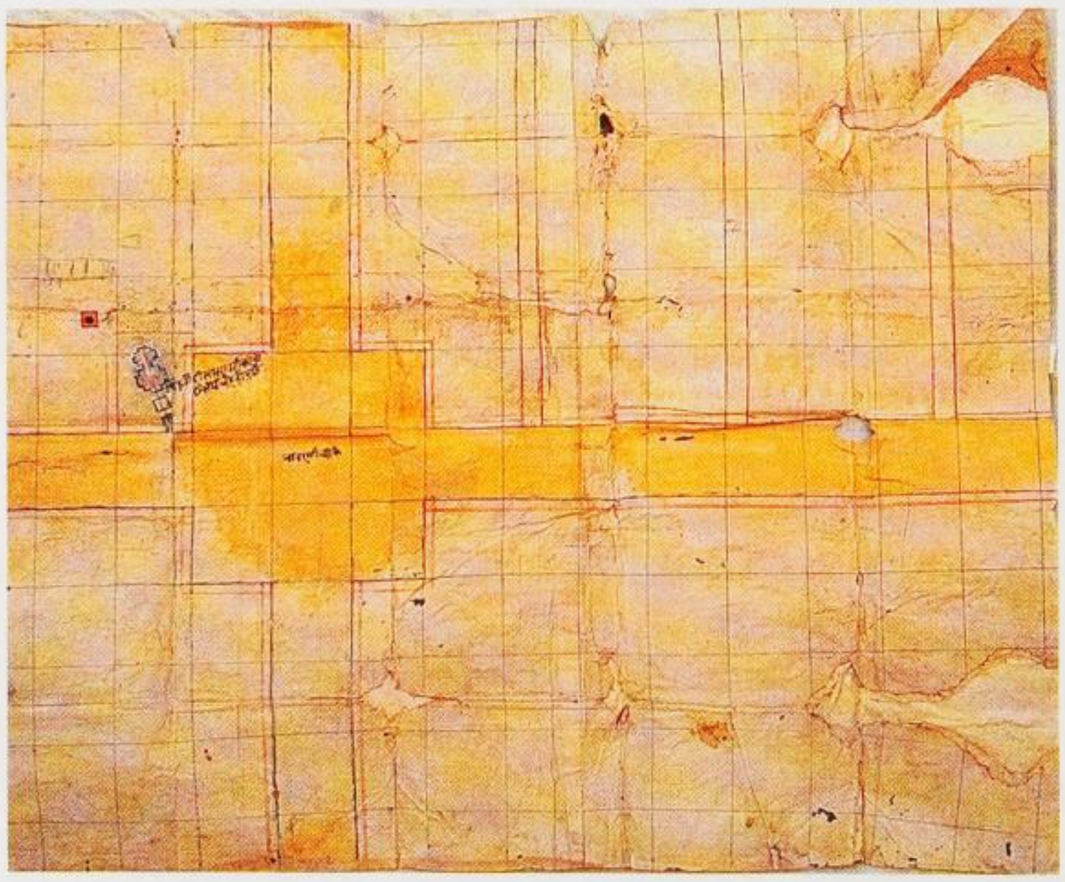
110a



111
Mirza Raja Jai Singh purchased land at Benares and a colony called Jaisinghpura sprang up around it. This map shows the temple beside the river, with the ghats, and has obviously been prepared to accompany a statement about repairs and additions to the temple surroundings. The steps, in yellow at the bottom of the map, are to be repaired and another ghat is to be constructed to the right of them, and at the extreme left edge, a narrow passageway is to be made into steps.

111	
Title	Man Mandir [in Kashi]
Size	70 x 193 cm
Language	Dhundari
Script	Devnagri
Material	Paper
Location	Jaipur: City Palace Museum
Cat. no.	130
Bibliography	—

112
This very rough sketch shows the orientation of a temple to be built in the corner of a square called Chandni Chowk, probably in Jaipur just outside the palace. A temple was built there during the time of Sawai Pratap Singh (1778–1803). A note beside the temple reads: This plan has been made with a north–south direction.



112	
Title	Chandni Chowk [in Jaipur]
Size	72 x 57 cm
Language	Dhundari
Script	Devnagri
Material	Paper
Location	Jaipur: City Palace Museum
Cat. no.	123
Bibliography	—

113	
Title	[Proposed canal]
Size	c.18 m x 23 cm
Language	Dhundari
Script	Devnagri
Material	Paper
Location	Jaipur: City Palace Museum
Cat. no.	65
Bibliography	—

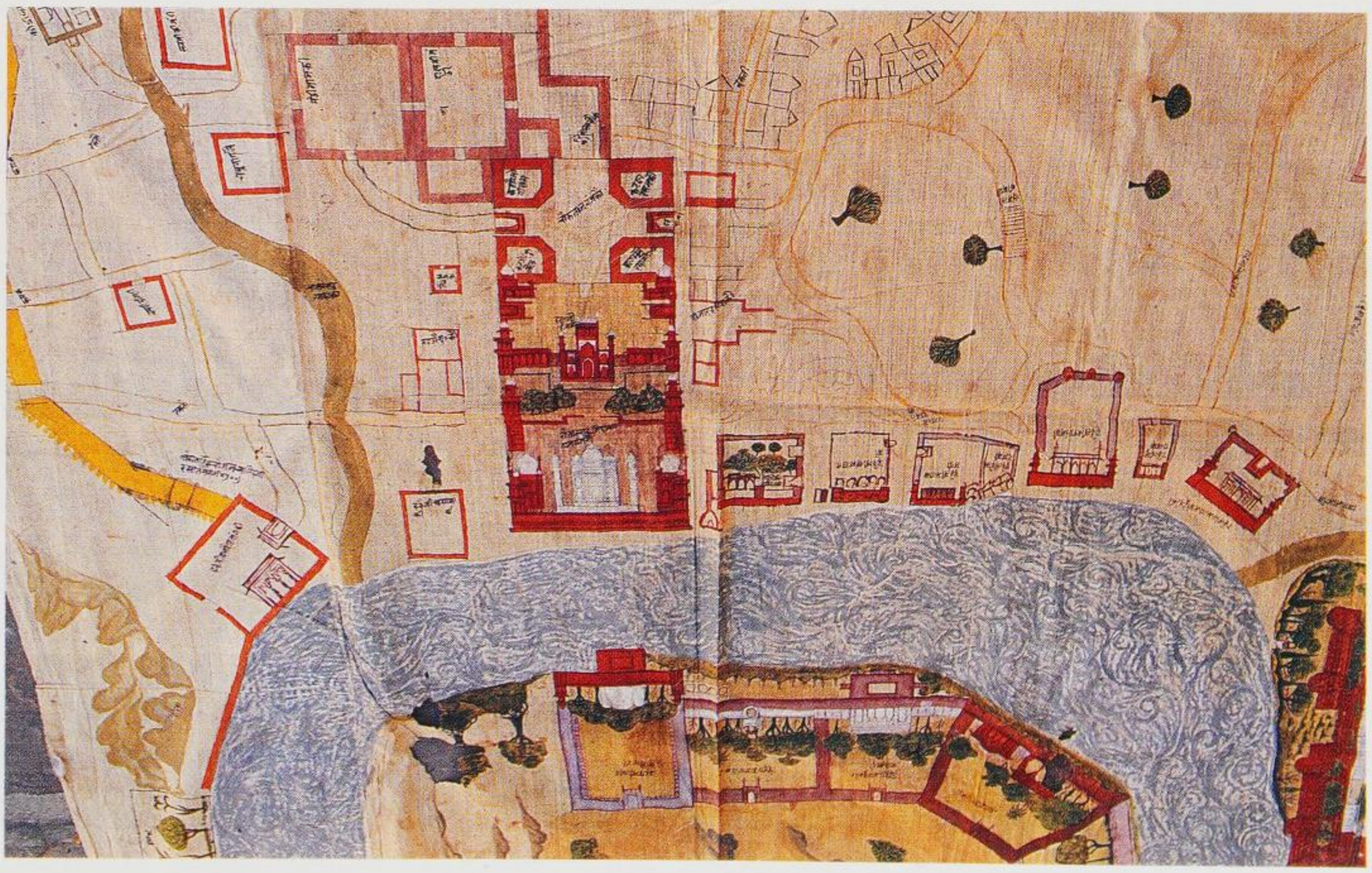
113

A large canal was planned to be built from Bhavasagar dam at Ramgarh to the Darwati lake near Jaipur, to bring water to the new capital of Sawai Jai Singh. It was never built, but the detailed plans for it reveal how far the project was developed.

Three thousand pillars were to be erected to carry the channel at a regular height, and the distance between the pillars is given in a textual note. Pillars at 1000 gaz intervals are shown in red, and at 100 gaz intervals in yellow. Each pillar is numbered, and the height needed to raise the water is given, mostly between four and eight gaz. Villages on either side of the canal have been shown and named, and also the hills between which the canal must pass.

113a
113b

114a. Detail from the map of Agra, showing the Taj Mahal, and gardens beside the river Jumna.



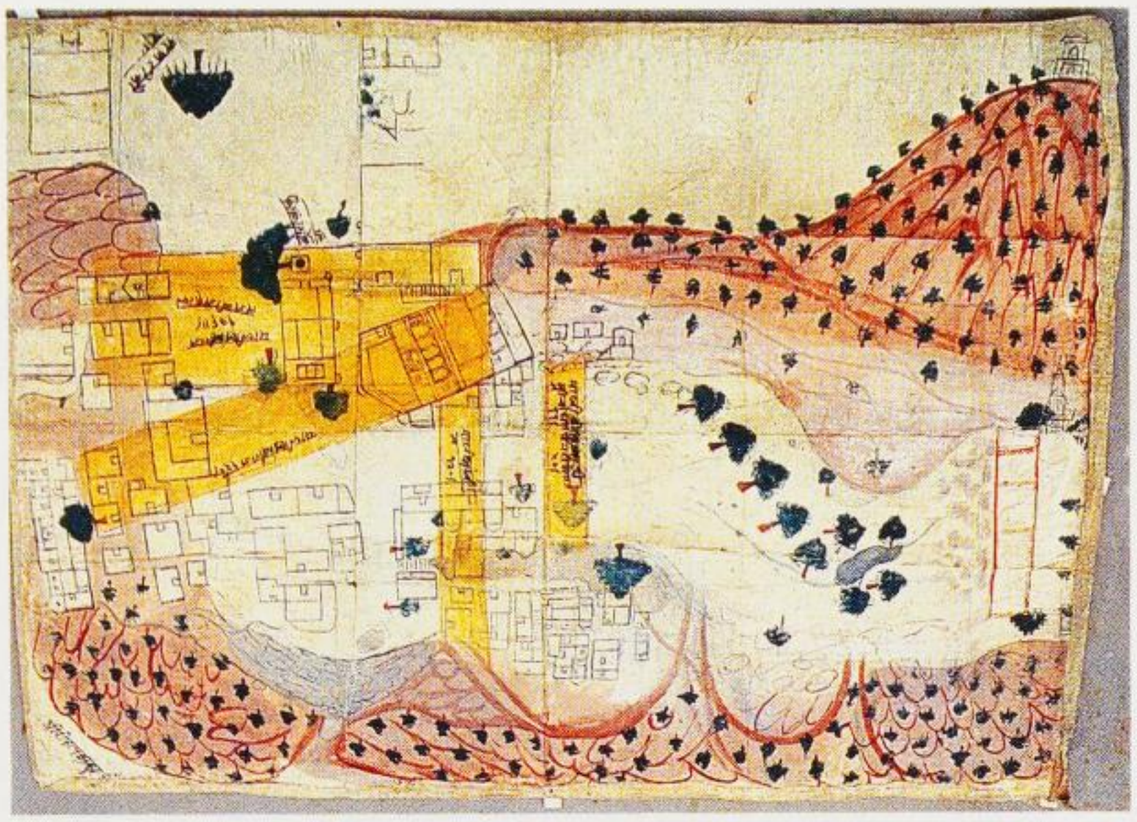
114	
Title	[Agra]
Size	292 x 272 cm
Language	Dhundari
Script	Devnagri
Material	Cloth
Location	Jaipur: City Palace Museum
Cat. no.	126
Bibliography	Chandramani Singh in *Facets of Indian Art*, pp. 190–92

114

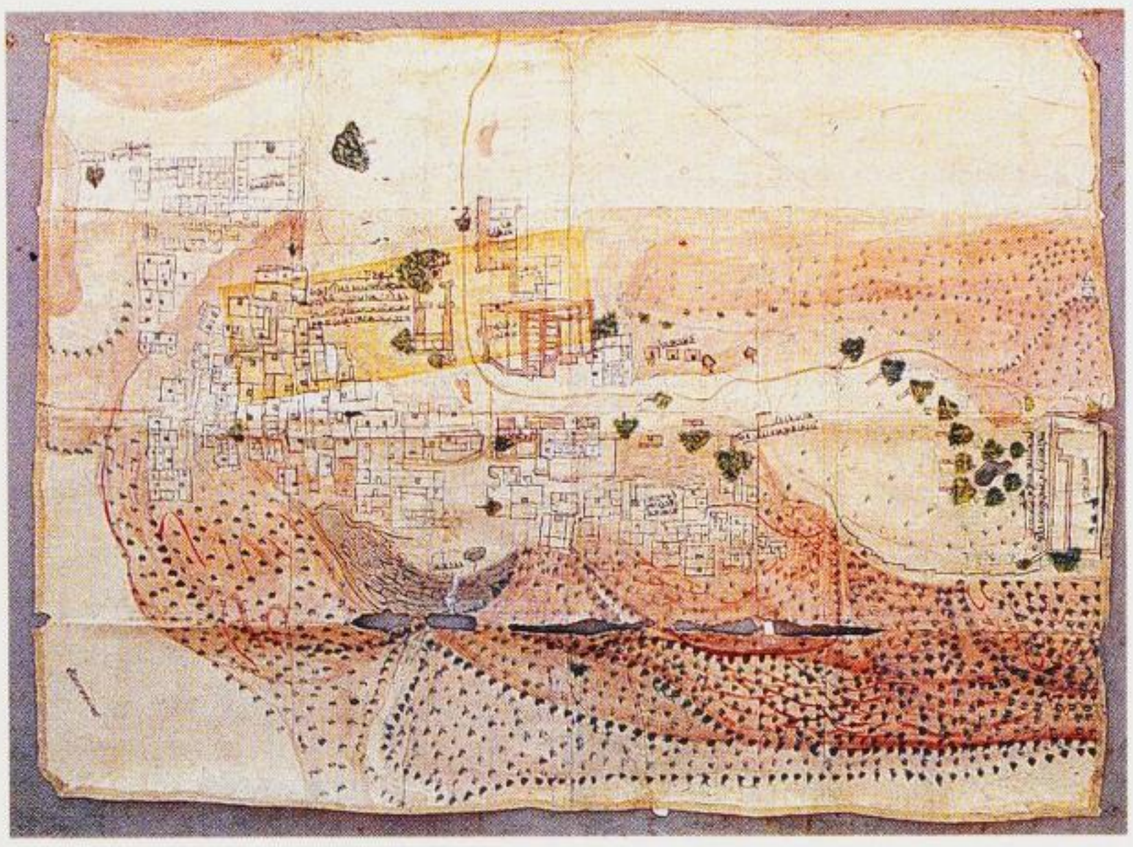
This very large map of Agra has been included among the construction maps, and not with the town plans, because of its content. Though it covers the whole town of Agra, much of it is very sketchy, and emphasis haas been given to the parts that required repair or further construction, probably during the time of Sawai Jai Singh. A new outer wall had to be constructed, shown in red on the map. The yellow parts of the wall were temporary constructions, not made of brick. All over the map measurements are given in gaz. The gaz varied, for land it was sometimes two feet, but for cloth three feet. On the other hand, a Jaipuri gaz was said to be 36 1/2 inches, or again, a gaz was once and a half times the measurement from the tip of the longest finger to the elbow. At one point in this map, within the yellow to the right of the Taj Mahal, an area is stated to be 47,000 gaz. Elsewhere, the distance from the Taj across the Jumna to the tower window of the fort is stated to be 15,042 gaz. So a gaz must have had a recognised size, understandable to the people using these maps.

A large number of people have been named in this map. Chandramani Singh has noted the house of Rai Shivadasa, who was not a figure of any historical or political importance apart from his association with Sawai Jai Singh, and so she dates the map to that period. Perhaps the artist knew Rai Shivadasa personally, or worked under him.

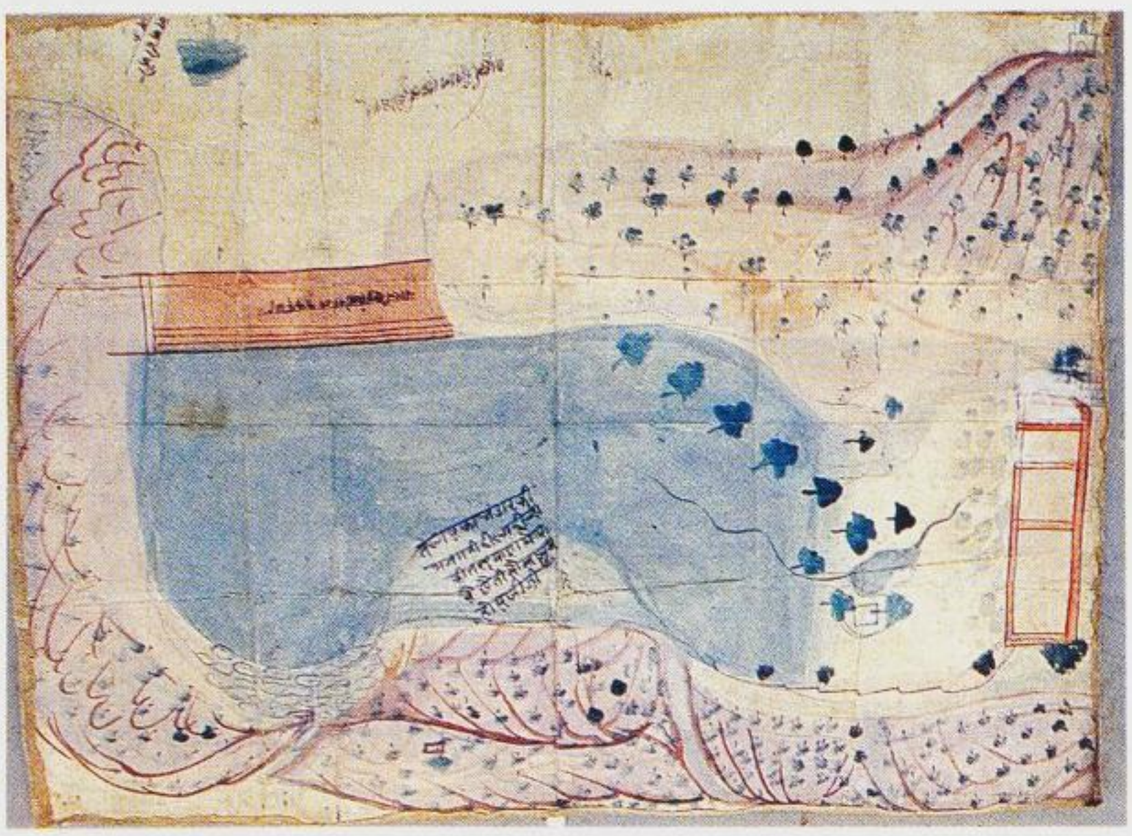
The Taj Mahal is in the upper right corner of the map. Beyond it are the havelis of Aga Khan and Khan Dauran. Between the Taj and the fort are the the Khan-e-Alam garden and the havelis of Asalat Khan, Mahabat Khan, Hasdan Khan, Ajam Khan, Mughal Khan and Yamtan Khan Rumi. The map clearly gives a wealth of detail, and is invaluable for a study of the nobility of Agra during the 18th century, and the growth of the city.



115
Title Khiri Area
Size 60 x 42 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 87
Bibliography —



116
Title Khiri Pass
Size 110 x 75 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 86
Bibliography —



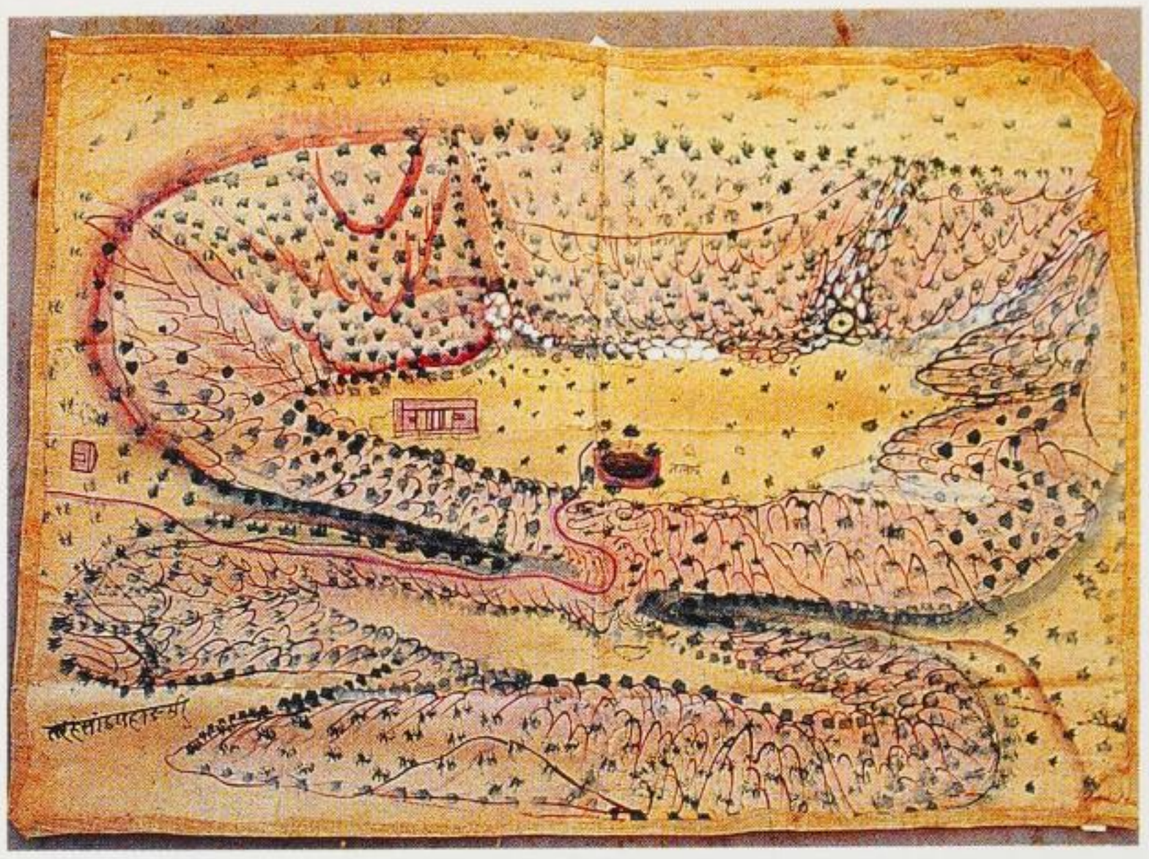
117
Title Khiri Pass
Size 58 x 42 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 85
Bibliography —

115, 116 and 117
This group of three maps is particularly interesting, as they depict the same place, Khiri, as it is, and how it would be if a dam were built, and part of the valley flooded. The dam was never actually built, and the houses that are shown in the map still stand today, perhaps the reason for the maps' survival, as they were never used on site during construction.

In No. 115 several measurements have been given, and perhaps alternatives for the siting of the dam, in yellow. In No. 116 it seems to be decided where the dam will come, and a note at the right, near the line of trees, reads that after completion the dam will be 23 1/2 gaz high, and the water will come up to here. No. 117 shows the lake already dammed. The long note reads: The lake is in the shape of a cardamom, or like a cloth being waved. This is for your information. There is no need to describe it as the map shows all.

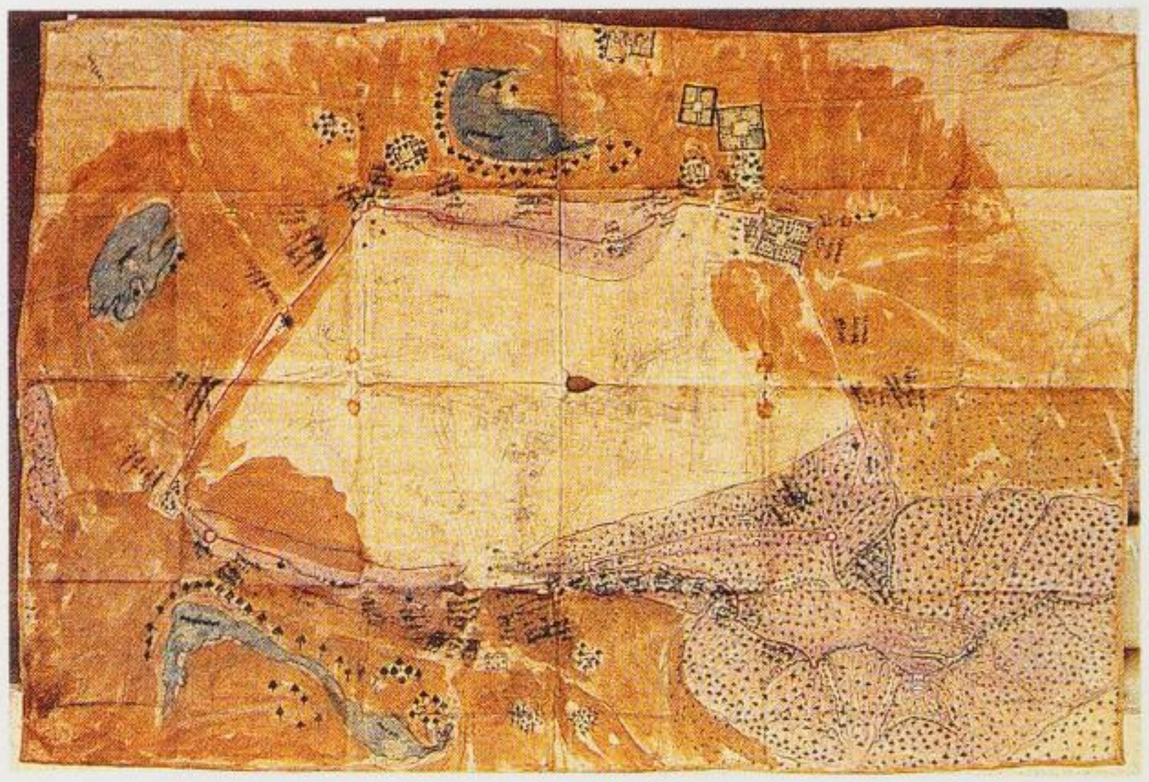
Several plans would have been submitted by the engineers of the Public Works Department for approval to various people, who would have noted their comments, and the maps might then have been redrawn. This series of three gives considerable insight into the way such projects were planned.

118
Title Sandh Hill
Size 44.5 x 31.5 cm
Language Dhundari
Script Devnagri
Material Paper on cloth
Location Jaipur: City Palace Museum
Cat. no. 84
Bibliography —

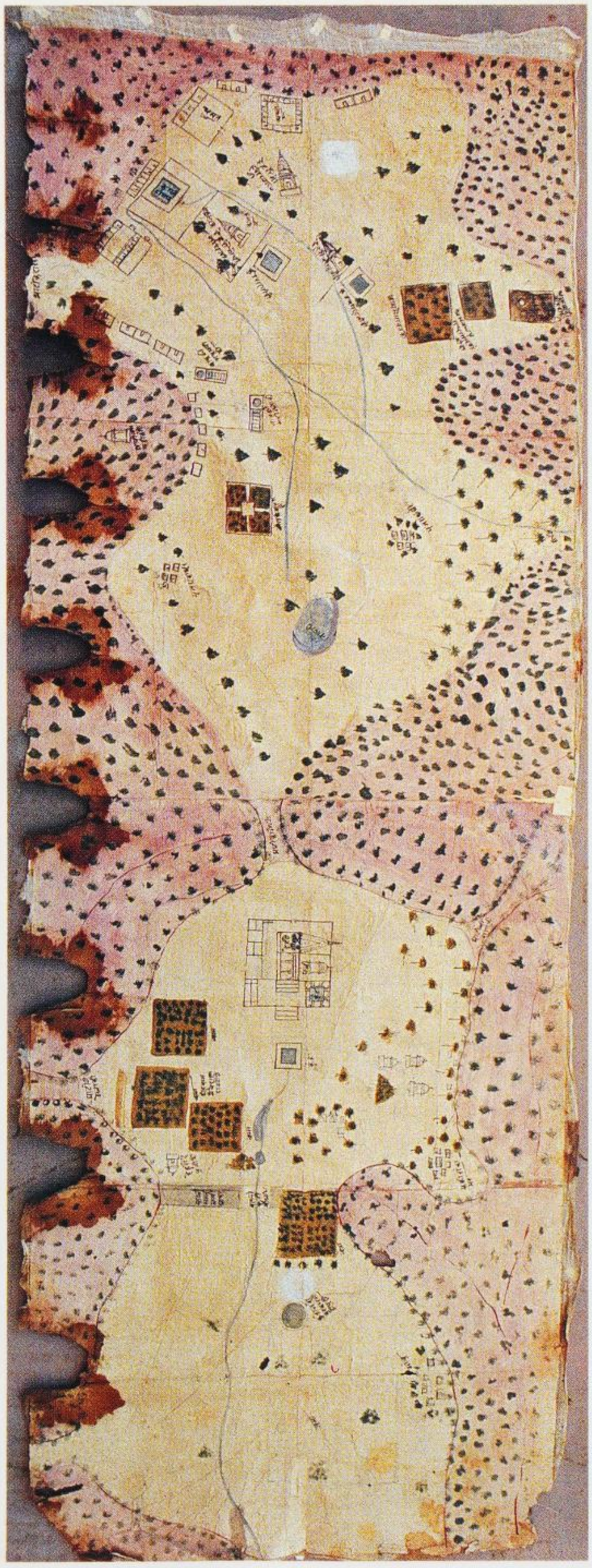


118
Only two inscriptions have been made on this map of Sandh Hill; one is the title at lower left, and the other is simply 'pond' in the centre. It is perhaps in the Bijapur/Golconda area, and it is known that Sawai Jai Singh went there on an expedition for Aurangzeb, and captured the fort. If maps were made of captured forts, one might expect many more than the few that have survived.

119
Title Tonk
Size 119 x 81 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 107
Bibliography —

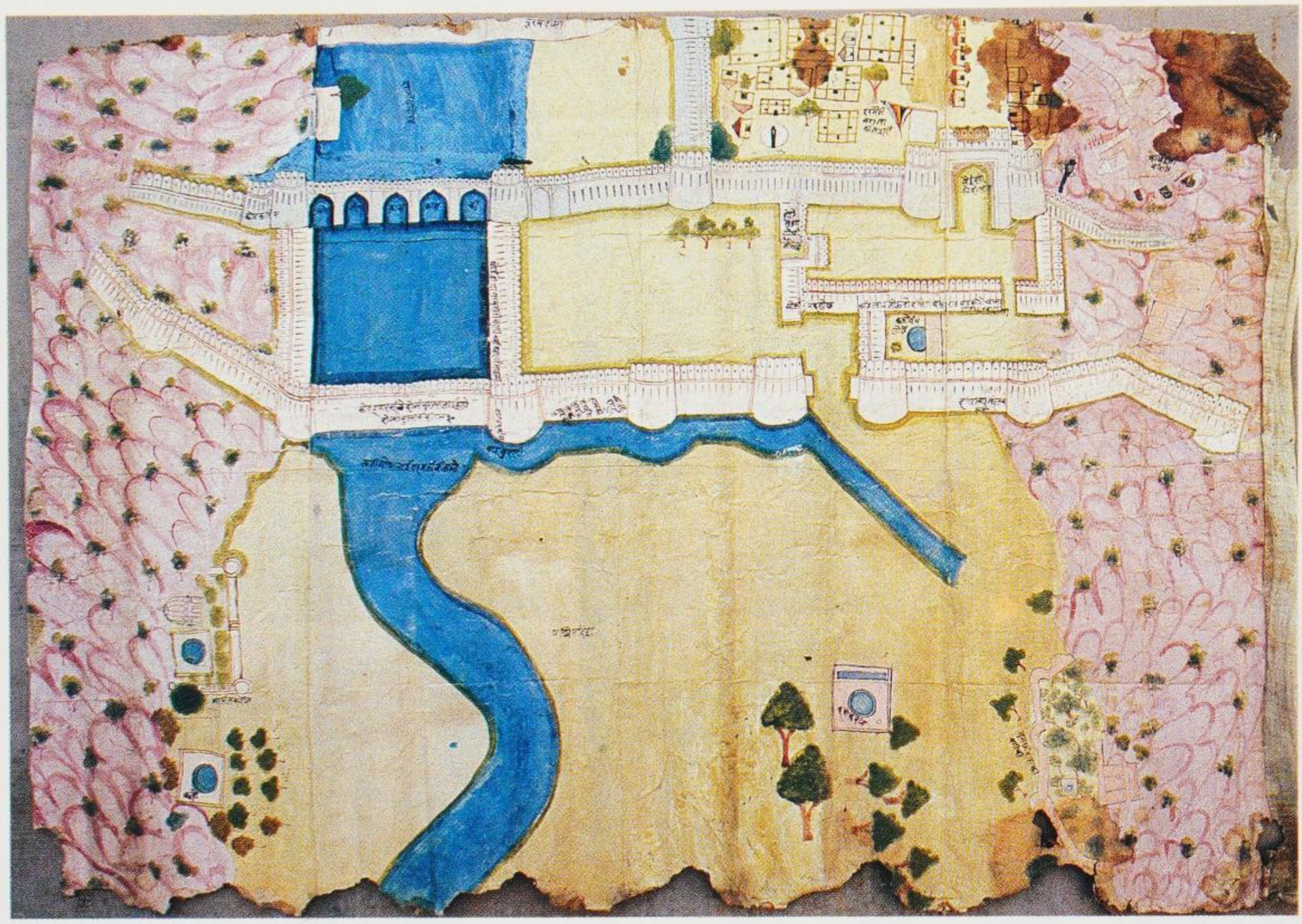


119
Tonk was awarded to Sawai Jai Singh by the Mughal emperor Mohammed Shah on 30 August 1724, as a jagir for his personal pleasure. The town already existed, and parts of it have been shown here in pencil. The map gives details of further construction, mainly of the wall to be built around the town. A note at bottom left near the Jadhura pool states that work here is complete, the wall is half a gaz wide and one gaz above the plinth. The tower near it is 25 gaz in diameter. Similar notes, giving the progress of the work, can be seen all along the wall.



120
Title Lohargarh
Size 60 x 162 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 89
Bibliography —

120
Lohargarh is a sacred place in the Sikar district of Jaipur state. It was supported by the state, and on this map several new amenities for the pilgrims are planned. The main temple is in the second valley from the bottom. Three gardens of seedless pomegranates are shown, and beyond them a track leads through a valley to Kandela. In the lowest valley, a well is to be built by government. At the upper right, the government is to build another garden, and provide a place for mendicants to live. Several wells are named, but it is not stated whether they already exist, or are to be built. Several tracks to places beyond the valley are also named. Study at the actual site would reveal the accuracy of the map.



121
Title Sawai Madhopur
Size 122 x 91 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 96
Bibliography —

121
Sawai Madhopur is about 120 km south-east of Jaipur, and Sawai Madho Singh built the town in 1763. This map is neater than many of the others in the Jaipur collection, and since it can be dated, the earlier dating of the others is suggested.

The town suffered from flooding in the monsoon, and this map showed a project to divert the excess water into a canal. Much of the work is noted as being already completed, for example, the drain two and a half gaz wide called Kamankot below the wall to the right. The wall beside the lake above it is to be 32 gaz high, and the wall between the two towers, across the stream, is to be 30 gaz long.

Several buildings from earlier periods have been shown on the map. In the hills at lower left is an old mosque, and at the left end of the dam above, is an ancient fort. The well near the trees at bottom right is also stated to be an old one. Another well, within the walls, is to have a permanent construction. East is named at the top of this map, and many of the measurements state the line of the walls according to their direction.

122
Title Sanganer
Size 165 x 124 cm
Language Dhundari
Script Devnagri
Material Paper
Location Jaipur: City Palace Museum
Cat. no. 114
Bibliography —

122
Sanganer is 16 km south of Jaipur, famous for its dying and printing of cotton cloth. Today much of the wall around it has fallen, and few of the towers remain. In this map, drawn at the time they were being built, or strengthened, the distance between each is given in gaz.

To the right is the Jaipur Gate. Inside the wall the streets have remained much the same as they are shown here, and it is possible to walk around the town using this map as a guide. The huge gateway called Tripolia, leading into the older part of the town still stands, shown here in elevation in the centre. Near it is the famous temple of Sanganer. Other temples are named too, as well as the Jain temple. To the right of the Tripolia is the customs house, where the bundles of cloth had to be stamped before leaving the town. Most of the houses have been sketched in roughly, indicating their presence, without any attempt at accuracy. But all the public buildings can be traced today.

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